

RMRC



Recycled  
Materials  
Resource  
Center



THE UNIVERSITY  
of  
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MADISON

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Research Project 67

# Update of WisLEACH Roadway Environmental Assessment Software

## Project Objectives

- Updating and furthering the development of the software program WisLEACH
- Development of a program based upon three analytical solutions to the advection-dispersion-reaction equation that describe transport in the vadose zone and groundwater

## Project Summary

This RMRC sponsored and funded project looked into the development and implementation of a computer tool designated WisLEACH. WisLEACH is web based computing program that allows users to evaluate various groundwater impacts from the beneficial use of industrial byproducts in roadway stabilization and embankment or structural fill applications.

To quantify the impacts found in the ground water through use of industrial by products in construction projects, the programing was based on three analytical solutions to the advection-dispersion-reaction equation that describe transport in the vadose zone and groundwater. This allows the application to computationally efficient and allows the user to operate it with little to no experience in numerical modelling.

WisLEACH itself contains nine separate modules for simulation, divided into two separate sections. The first section investigates leaching in roadway stabilization. Under this section there are six individual modules, divided into two dimensional and three dimensional models. Both models contain water leach testing module, a column leach testing module focused upon absorption control, and a column leach testing module focused upon a user defined pattern. The second section investigates leaching in embankment and structural fill applications. This section only contains a three dimensional model with three separate individual modules. They are a water leaching test module, column leach testing focused on absorption control and column leach testing focused upon a user defined pattern.

## Project Partners

Jackson State University, Wisconsin Department of Natural Resources, Alliant Energy Corporation

## End Products

The final product was completing and publishing this program for public use. Specific directions on how to use each individual module can be found in the final report on the Recycled Materials Resource Center website.

## Further Information

The Recycled Materials Resource Center (RMRC) is a national center that promotes the appropriate use of recycled materials in the highway environment. It focuses on the long-term performance and environmental implications of using recycled materials