

# Modeling Microbially Induced Concrete Corrosion in Sewers

*Jeffrey Davis, Dana Nica and Deborah Roberts*

Department of Civil and Environmental Engineering

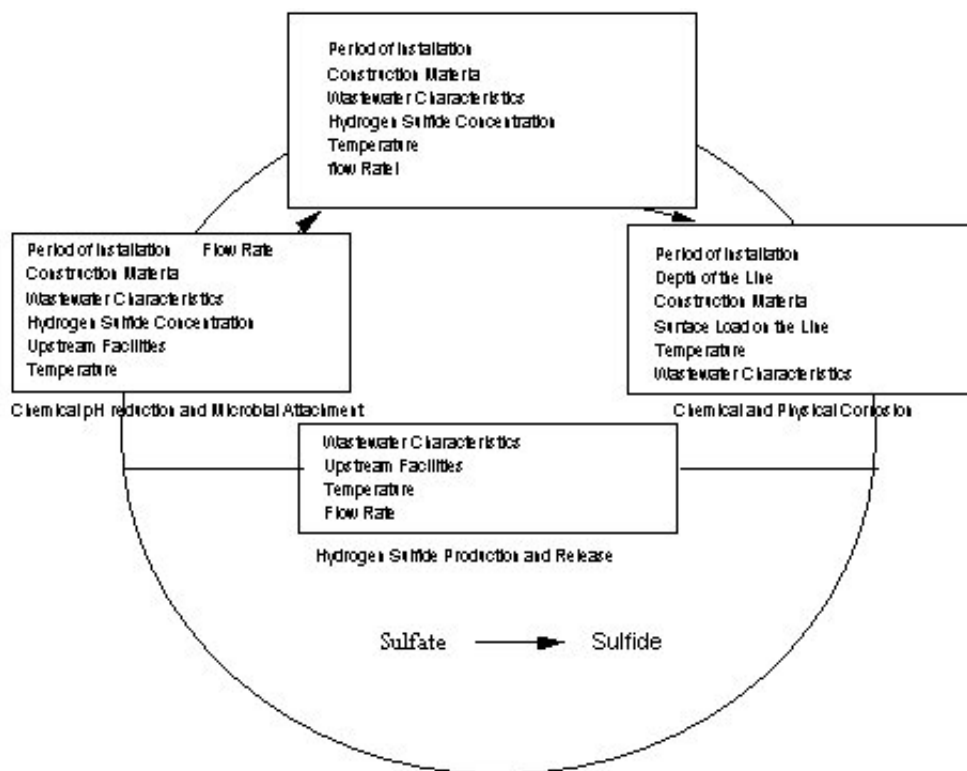
University of Houston, Houston TX 77204-4791

Phone: 713-743-4250 E-mail: jldavis@uh.edu

The state of urban infrastructure systems has become a problem worldwide because of the cost of expansion and maintenance. The wastewater collection system is a major portion of that infrastructure. A failure in the wastewater collection system can lead to health problems and property damage, so efforts must be made to insure the integrity of the sewer system.

Microbially Induced Concrete Corrosion (MICC) is the process where biogenic sulfuric acid reacts with cementitious material to deteriorate the integrity of concrete pipe and other structures. Research is currently underway at the University of Houston to examine the processes involved in the MICC process. Since its first discovery in 1945, many studies have been conducted on MICC, but none look at the process in its entirety. Studies at the University of Houston are looking at all aspects of the corrosion process from sulfide production to sulfate-concrete interactions.

A model is being developed to describe the processes involved in MICC. This model will integrate currently available information and partial models as well as developing a total concept model. Laboratory experiments are being conducted to determine information that is not available from literature. The final model will be useful to predict MICC for various types of concrete under different environmental conditions.



**Conceptual Model and Factors in the MICC Process**

---

University of Houston, Department of Civil and Environmental Engineering 4800 Calhoun, Houston, TX 77024  
Phone 713-743-4278 Fax 743-4260