curred even at low temperatures with the initial content of a pollutant as low as a few ppm. The reaction rate was found to increase with the initial concentration of the pollutants, pH value and temperature in a mixture. Identifications of the reaction products are being attempted utilizing a gas chromatograph. Detailed studies of the kinetics of reactions in a stopped-flow spectrophotometer system are in progress to develop kinetic models for predictions of the extent and dosage required for the decontamination.

Degradation of organic vapors in unsaturated soils

C.W. English and R.C. Loehr

Environmental and Water Resources Engineering Program, Department of Civil Engineering, University of Texas at Austin, Austin, TX 77843-3136 (USA)

Abstract

The need to provide treatment for soils contaminated with hazardous materials from accidental spills and land based handling operations has become increasingly apparent. To develop adequate treatment and control for volatile air emissions and to predict the fate of chemical constituents in soil, it is necessary to understand the fundamental processes and interactive mechanisms that occur in the unsaturated soil. Such knowledge can be utilized to: (a) provide criteria for designing soil bioremediation processes, (b) estimate air emissions from soil based treatment systems and (c) evaluate alternative remediation technologies at hazardous wastes sites, such as soil filters for vapors and exhaust gases.

Numerous contaminant transport models include volatilization and the subsequent movement of vapor through the unsaturated zone as model parameters. The use of these models impact decisions on air emissions, transport and fate of volatile compounds, regulatory limits, on-site controls and treatment strategies. To date, there is a limited amount of experimental data available to test these models. In addition, modeling efforts to describe the removal of VOCs in soil require constitutive relationships for removal mechanisms that are developed from laboratory data. The identification of important retardation and removal mechanisms in the vadose zone, the determination of removal coefficients, and the evaluation of their significance in the removal of VOCs in a fine sandy loam soil is the focus of this research.

Data from batch reactors were collected for the vapor phase sorption and degradation of three compounds, benzene, xylene, and trichloroethylene, in an unsaturated soil from Texas. These data were used to determine both sorption and degradation coefficients. The results indicate VOCs are sorbed and then removed by degradation as they pass through the soil in the vapor phase. In turn, these coefficients were used in a fate and transport model to evaluate the significance of vapor removal in the overall distribution of the VOCs in soil. This information has great potential for use in the bioremediation of soils contaminated with VOCs.

Demographic and social correlates of NIMBY

Stuart A. Wright

Department of Sociology, Lamar University, P.O. Box 10026, Beaumont, TX 77710 (USA)

Abstract

Recent studies and public opinion polls suggest that environmental attitudes cut across socioeconomic and demographic lines. With one notable exception — a study which shows significant differences by age — the recent, more rigorous research has found that environmental concerns are widely distributed in the population. However, these studies basically aim at generalized environmental issues that effect the respondents only in a hypothetical sense. The present study focuses on a population faced with a real prospect of a new hazardous waste facility. Thus it differs from other studies in two important ways: (1) It targets a community confronted firsthand by a proposed site, and (2) it measures a more specific or narrow set of environmental concerns (NIMBY or Not-In-My-Back Yard attitudes) than is typically measured by public opinion polls.

Drawing on survey data from four communities surrounding a proposed hazardous waste facility near Houston, an exploration of public attitudes is made to assess the similarities between NIMBY and studies of generalized environmental issues. A multivariate analysis is conducted to determine the relative and direct effects of social and demographic variables on NIMBY attitudes, and a test of the age cohort hypothesis is made.
