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ABSTRACTS

The Determination of the Removal Rate of Specific Chemicals by the Indianapolis Wastewater Treatment System. WILLIAM BERANEK, JR. AND ELIZABETH DUSOLD, Indianapolis Center for Advanced Research, Inc., 611 North Capitol Avenue, Indianapolis, Indiana 46206.——The rate of removal of toxic chemicals from a municipal wastewater treatment facility is a critical value for policy makers determining the industrial discharge concentrations into a sewer system.

Increased attention to the removal rate now is occurring because of its regulatory use in adjusting the national categorical industrial discharge limits to the special conditions present in specific municipal wastewater treatment facilities.

Due to the constantly changing heterogeneous chemical composition of the influent of the facility and to the changing retention times of the flow of material through the facility, reliable measurement of the removal rates are very difficult.

This paper reviews the removal rate measurements at the Indianapolis Advanced Wastewater Treatment facilities and discusses the significance of the measurements.

A Superfund Risk Assessment in Indiana: A Case Study of the Columbia City Site. WILLIAM BERANEK, JR., ELIZABETH DUSOLD, JOHN MERRILL AND MARTIN ST. CLAIR, Indianapolis Center for Advanced Research, Inc., Beranek Associates, Inc., and California Institute of Technology.——The Wayne Waste Oil site in Columbia City, Indiana is currently on the National Priority List of the U.S. Environmental Protection Agency of sites requiring a risk assessment under the Comprehensive Emergency Response, Liability and Compensation Act. This is due to the presence of chemicals close to an aquifer used as drinking water by a community of 5,000 people.

The methods and results of the risk assessment which were performed between April 1983 and August 1984 are presented. The methods include chemical sampling and measurement, groundwater flow measurement, geological strata evaluation and draw-down pumping testing.

The Ratio of PM-10 to TSP in the Atmosphere. WILLIAM BERANEK, JR. AND DAVID JORDAN, Indianapolis Center for Advanced Research, Inc., 611 North Capitol Avenue, Indianapolis, Indiana 46206.——The U.S. Environmental Protection Agency is proposing to change the indicator pollutants of the National Ambient Air Quality standard from total suspended particulates (TSP) to the fraction of particulate matter smaller

than ten microns in aerodynamic diameter (PM-10). Marion County currently has a non-attainment status for TSP, although 1983 readings showed no primary violations.

In order to estimate the ambient air quality levels in Marion County of this new standard, the Indianapolis Air Pollution Control Division, with the support of Indianapolis corporations through the Indianapolis PM-10 Task Force, since January 1983 has been monitoring PM-10 at four locations.

This paper reviews the results of the study and discusses the implication in the context of the proposed changes in the federal regulations on particulates.

Evaporation Rates of Organic Liquids at Various Wind Speeds and Temperatures. HOWARD E. DUNN, BENJAMIN P. MILLER, CHARLES B. MACER AND MICHAEL E. KLAUSMEIER, Departments of Chemistry and Physics, Indiana State University Evansville, Evansville, Indiana 47712.——In previous papers the authors have investigated computer model predictions of downwind concentrations of toxic gases from continuous sources and from instantaneous releases. An additional case of importance is the calculation of a region to be evacuated resulting from the evaporation of a toxic liquid spill. A review of the literature revealed minimal information pertaining to the calculation of evaporation rates of liquids at various wind speeds and temperatures.

A wind tunnel was designed and constructed for the purpose of measuring the desired evaporation rates. The weight loss from an evaporation dish can be measured at intervals for wind speeds of three to twenty miles per hour at commonly encountered atmospheric temperatures above freezing.

Results obtained have been compared with similar results reported by other investigators and with empirical correlations reported for evaporation rates. Completed results from this evaporation rate study will be incorporated in a computer model to predict an evacuation zone for protection of the population from a spill of any one of several dangerous volatile chemicals.