

Industrial Air Toxics Risk Study for the Calcasieu Parish Right-to-Know Coalition

The study will quantify, using U.S. Environmental Protection Agency-sanctioned air quality dispersion modeling, EPA risk factors, and Census Bureau 1980 population data, the estimated excess cancer risk attributable to 15 known or suspect human carcinogens emitted into the air in Calcasieu Parish by Coalition industrial participants. The work will be performed at McNeese State University by Dr. Bruce Wyman, assistant professor of environmental sciences. The study's target completion date is January 1991.

The 1987 air emissions of the following chemicals will be included in the risk assessment study: chrome (VI) compounds; 1,3-butadiene; 1,2-dichloroethane; vinyl chloride; vinylidene chloride; hydrazine; chloroform; 1,1,2-trichloroethane; benzene; 1,1,2,2-tetrachloroethane; carbon tetrachloride; trichloroethylene; 1,1,2,2-tetrachloroethylene; styrene; and dichloromethane.

Study outline:

1. Enter emission locations, rates, stack dimensions, etc. and meteorological data from the Lake Charles station of the National Weather Service into an EPA air dispersion model, which produces estimated annual average air concentrations at locations across the parish for each chemical modeled.
2. The computer model then combines location-specific estimates of average air concentrations for each chemical with census data for Calcasieu Parish, to produce the number of people exposed to various pollutant levels.
3. The model uses EPA dose-response data for each chemical, along with the population exposure levels, to compute an estimate of the population lifetime cancer risk attributable to the air exposures.
4. The model output will be compiled to present the aggregate annual cancer risk attributable to industrial emissions of the 15 chemicals, and a risk allocation by chemical. The results will be expressed as the number of excess cancers per year in the parish attributable to the industrial emissions.

CTL010103

Study features:

1. The cancer risk estimate will be made using United States Environmental Protection Agency-approved methods and will be an "upper bound" risk; i.e., each step in the EPA approach is biased deliberately toward a conservatively-high risk estimate. Therefore, the study results are very unlikely to be an underestimate of the risk, and the true risk is probably lower than the model estimate.
2. A Data Committee will review all input data to the computer model. The volunteer membership of the committee includes an environmental manager from area industry, two citizens of Westlake, and two members of the Calcasieu League for Environmental Action Now (CLEAN).

For more information:

Dr. Bruce Wyman
McNeese State University
Department of Biological & Environmental Sciences
P.O. Box 92000
Lake Charles, LA 70609
Telephone 475-5669

CTL010104