UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D. C. 20555

August 8, 1978

Honorable Joseph M. Hendrie
Chairman
U. S. Nuclear Regulatory Commission
Washington, DC 20555

SUBJECT: EVALUATION OF ALTERNATIVE SITES FOR THOSE WITH HIGH POPULATION DENSITIES

Dear Dr. Hendrie:

During its 218th meeting, June 1 and 2, 1978, the Advisory Committee on Reactor Safeguards reviewed the NRC Staff proposal to use the Calculation of Reactor Accident Consequences (CRAC) Code as a tool for the assessment of alternative sites in areas of high population densities. The proposal was also considered during a Subcommittee meeting on May 3, 1978. The Committee also had the benefit of the documents listed.

The studies to date have shown that the CRAC Code can provide additional understanding of the impact on the public health of accident consequences exceeding the limits of 10 CFR 100. However, there are many factors influencing the application of the Code that have an important bearing on the computational results but which the Code does not address adequately. These include regional meteorology (particularly for coastal and river valley sites), plume geometry, and effluent particle size distribution. In addition, the Code does not address the behavior of radionuclides within containment prior to release.

Because of these recognized limitations, the ACRS recommends that caution be exercised in the use of the Code in alternative site evaluations. In addition, efforts should be continued to develop improved input data for the Code.

Sincerely yours,

Stephen Lawroski

Stephen Lawroski
Chairman

References

1. U.S. Nuclear Regulatory Commission Staff Paper, "Assessments of Relative Differences in Class 9 Accident Risks in Evaluations of Alternatives to Sites With High Population Densities," SECY-78-137, dated March 7, 1978.

2. U.S. Nuclear Regulatory Commission, "Reactor Safety Study, An Assessment of Accident Risk in U.S. Commercial Nuclear Power Plants," Appendix VI, WASH-1400, NUREG-75/014, dated October 1975.

3. Wall, I. B., et. al., "Overview of the Reactor Safety Study Consequence Model," USNRC Report NUREG-0340, dated October 1977.

4. Church, Hugh W., "The Atmospheric Dispersion Model as Used in the Reactor Safety Study, WASH-1400," Reprint from "Third Symposium on Atmospheric Turbulence, Diffusion and Air Quality," Raleigh, N.C. (October 26-29, 1976).

5. Acharya, S., "Some Observations on the CRAC Code and WASH-1400," USNRC, dated March 23, 1978.