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

April 8, 1975

Honorable William A. Anders
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: EMERGENCY PLANNING

Dear Mr. Anders:

In the course of its reviews of reactor facilities, one of the items taken into consideration by the Advisory Committee on Reactor Safeguards is the degree to which applicants have prepared a sound plan of action in case of emergency situation. This matter was the subject of meetings of the ACRS Environmental Subcommittee on July 26-27, 1974, and January 17, 1975, and was most recently discussed at the 179th and 180th meetings of the full Committee on March 6-8 and April 3-5, 1975.

On the basis of its evaluations, the Committee has concluded that an effective emergency plan can play a significant role in the protection of the nearby population in the unlikely event of a major accidental release of radioactive material for a nuclear installation. Reviews by the Committee, however, of emergency plans for nuclear power plants currently in operation, or nearing completion of construction, show that much work remains to be done. In this regard, the Committee has identified the following items:

1. Action Criteria

There is a lack of well defined criteria for the initiation of remedial actions. A comparison of emergency plans for various nuclear power plants shows that there are large differences in dose rates at which similar protective actions would be initiated. The Committee notes that the Environmental Protection Agency is developing a set of uniform protective action guides for use by State agencies. The Committee recommends that NRC lend appropriate support to assure that this effort be completed as soon as feasible.

2. Accident Scenarios

Sound emergency planning requires the ability to cope with a wide range of accident situations. Inquiries by the ACRS indicate a lack of development of an adequate series of scenarios to cover the range of emergencies which might take place and of methods for minimizing the resulting consequences. Such scenarios need to be developed and drills incorporating appropriate responses should be conducted. Following such drills, emergency plans should be revised and updated as necessary.

3. Accident Instrumentation

A key factor in the ability to respond intelligently to an emergency is the availability of instrumentation capable of determining the nature of, and following the course of, an accident. Although all plans have useful instruments of one or more types, few plants are equipped with instruments of a sufficient variety and range of applicability. Further work is needed to assure that appropriate instrumentation is provided and that the resulting data are readily available and can be interpreted promptly.

4. State Response Plans

There is a need for further improvement of response plans on the part of State and local agencies who will be responsible for protection of people in the neighborhood of plants. This includes the development of a well defined division of responsibilities and of the coordination required among people responsible for on- and off-site aspects of protective actions. There is a need also for improved coordination of emergency planning for those installations located near the border between States, and for installations located near our borders with Canada and Mexico.

Additional observations by the Committee are that the response plans of many States responsible for dealing with population groups in the neighborhood of nuclear power plants are only in the planning stages or, if completed, show a need for more professional knowledge in this subject area. Compounding these problems is the fact that Federal funds to lend support to the development of State response plans, which the Committee understood were to be made available through the Federal Disaster Assistance Administration, have never materialized. Although there have been several candidate states for the development of model state plans, no such plan has yet been completed.

The Committee is pleased to learn of the recent visits by an interagency training cadre to evaluate the emergency response capabilities of selected States. The Committee recommends that this program be expanded and that the NRC assume a role of leadership in coordinating the necessary efforts to foster the development of adequate State emergency response capabilities.

5. Action Verification

In case of accident response, there is need for the development of means for verifying that protective actions have actually been carried out by responsible individuals. Criteria need also be established for terminating emergency actions. The Committee recommends that the NRC assure that emergency plans include designation of the responsible individuals and the establishment of the necessary critieria for handling these matters.

6. Professional Support

Many key decisions in emergency actions will be dependent upon sound interpretation of environmental-radiation-related information. Reviews of existing emergency plans often reveal a lack of understanding of the importance of professionally qualified radiation protection personnel in such actions. The Committee believes that such personnel must play a key role in the design and implementation of emergency response measures and recommends that greater attention be given to this matter.

7. Federal Emergency Assistance

For a number of years, the United States Atomic Energy Commission has maintained a Radiological Assistance Program through which interagency Radiological Assistance Teams were available for immediate response in emergency situations. The Committee recommends that NRC assure the continuation of this Program.

8. Research and Development

Research and development efforts on several aspects of these problems are underway at several of the National Laboratories and by the NRC and ERDA headquarters staffs. Examples include the Atmospheric Release Advisory Capability (ARAC) at the Lawrence Livermore Laboratory, the Clinch Valley Study at the Holifield National Laboratory, and a rapid version of the Aerial Radiation Monitoring System (ARMS) being considered for development by the headquarters staffs. In addition, studies of the evaluation of risks of evacuating population groups are underway within EPA. Such efforts, however, appear to be in need of improved

coordination to assure that results will be in a form suitable for ready implementation by NRC licensees, State and local units, and appropriate Federal agencies. Also needed are studies to assure that the results of these R&D efforts are disseminated to user groups.

To assure that the best methods for population protection are being incorporated into emergency planning, additional research is needed on appropriate countermeasure actions for reducing the population intake of radioactive materials, particularly through food and milk. Attention also needs to be directed to the long range implications of potential radioactive contamination of land areas with respect to possible methods of cleanup and any necessary restrictions on land use.

Sincerely yours,

/s/ William Kerr

William Kerr
Chairman