ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
UNITED STATES ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

April 8, 1961

Mr. James T. Ramey
Executive Director
Joint Committee on Atomic Energy
Congress of the United States
Washington, D. C.

Subject: JOINT COMMITTEE'S STAFF STUDY ON IMPROVING THE AEC REGULATORY PROCESS

Dear Mr. Ramey:

This is in reply to your letter of March 22. The Advisory Committee on Reactor Safeguards is pleased to submit its views on methods for improving the regulatory processes and the safety of nuclear reactors.

In reply to your questions regarding the three specific proposals for modification of the regulatory organization and procedure, we believe that any one of these proposals may be workable. However, the problem is to select the organization and procedure which is most advantageous in assuring the safety of nuclear reactors in the light of the present knowledge and state of development of the field, and at the same time to set up an organization and procedure which can develop to meet the needs of reactor regulation in the future.

Although it is our belief that any one of the three proposals can be made to work -- given the proper high quality of leadership and personnel -- there are points in each of the proposals which require modification in order to conduct the safety review of reactors efficiently and to keep to a minimum the burden upon the applicant, the AEC staff, and the ACRS in giving these projects adequate review.

Specifically, the Committee's comments on your points are as follows:

1. It is the Committee's view that separation of the regulatory organization from the promotional activities of the AEC is desirable as we previously stated (See JCAE Study, "Improving The AEC Regulatory Process," March 1961, Volume II Appendix, Page 590). The creation of a Director of Regulation reporting

directly to the Commission is a step in this direction. Many of the problems which existed under the earlier systems can be solved under the AEC organization plan, if properly implemented. However, it appears that the final judgment of reactor proposals may not receive the desired technical emphasis or simplification of procedures. It should be pointed out that reactors owned by the AEC and operated for the promotion of peaceful uses of atomic energy should give the same degree of protection to the public as licensed reactors. It is not yet clear how this activity will be coordinated with that of the organization under the Director of Regulation.

2. The ACRS recognizes the problem of promotion and regulation within the same agency and is sympathetic with the motivation for the study by Messrs. Berman and Hydeman. However, it is the consensus of the Committee that the large body of information and technical competence which resides in the AEC and its contractors can be most effectively made available if the regulatory agency requiring this information is in the same governmental agency, namely, the AEC. Adequate separation of promotion from regulation can be achieved within the agency using either the organization recently adopted by the AEC in setting up a Director of Regulation reporting directly to the Commission, or by the proposal of the staff of the Joint Committee on Atomic Energy, or some modification of either plan.

3. The proposal of the JCAE staff for an Atomic Safety and Licensing Board, containing both technically and legally trained persons, has considerable merit. The Committee believes that the problem is primarily technical. It also realizes the need for some formal public record. The proposal for a Board includes both aspects. If this proposal should be adopted, to be effective it must clearly state the interrelation of the various parts of the regulatory organization. We hope that there will be a direct relationship among the Board, the ACRS, and the technical staff. Unless the relationships are specified and duplication of staffs avoided, there exists in this plan a distinct possibility that an applicant may be subjected to two, or even three, independent safety reviews. This may negate one of the principal stated reasons for the proposed changes.

4. The ACRS favors the JCAE proposal for a Board as being a sound framework for the future growth of the hearing and licensing process. It is important that changes in the regulatory process provide for a continual review of current needs instead of relying on an intensive analysis every three or four years.

It is also important to the assurance of safety of the public that regulatory processes provide for the continuous growth of technical understanding of the physical problems which are not yet completely understood. The Committee believes applicants should be subject to one, and only one, complete and detailed review at each licensing phase. This review should be conducted by the full-time staff.

The regulatory organization, whatever its form, should have means of keeping informed concerning the experience with reactor operation and research and development.

There is a need for additional effort to write technical specifications and terms of reactor licenses so that reasonable flexibility of operation can be obtained without sacrificing safety. It is probable that some degree of uniformity in the terms of the licenses can be achieved.

5. Finally, you have invited the Committee's comments on current problems in reactor safety. There are a number of such problems which are being given varying but not necessarily adequate attention. To avoid a lengthy discussion at this time, a list follows which is illustrative but not all inclusive.

Aging of reactors -- deterioration of pressure vessels and reactor systems during operation.

Collection and evaluation of operating experience.

Competence of designers, constructors, and operating organizations.

Control requirements.

Corrosion.

Heat transfer and burn-out correlations.

Means of detecting and predicting instability.

Radiation effects on materials.

Site criteria -- man-rem dose, unusual meteorological conditions, large city distance, multiple reactor installations, and emergency tolerance doses.

Testing for nuclear service.

These problems are not all independent and thus research in reactor safety should be set up in an organized way.

Sincerely yours,

/s/ T. J. Thompson

T. J. Thompson
Chairman

cc: Commissioner L. K. Olson