

D920817

Mr. James M. Taylor
Executive Director for Operation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Taylor:

SUBJECT: PROPOSED REGULATORY GUIDE AND INTERIM STANDARD REVIEW
PLAN FOR LICENSE RENEWAL AND A RELATED BRANCH TECHNICAL
POSITION ON FATIGUE EVALUATION PROCEDURES

During the 387th and 388th meetings of the Advisory Committee on Reactor Safeguards, July 9-11 and August 6-8, 1992, we reviewed a proposed Regulatory Guide (DG-1024) and an interim Standard Review Plan (SRP) (NUREG-1299) to be used in plant license renewal. We also considered a proposed Branch Technical Position (BTP) (an appendix to the SRP) on fatigue evaluation procedures which would provide a basis for license renewal reviews. These matters were also considered during a joint meeting of our Subcommittees on Plant License Renewal and Materials and Metallurgy on July 7, 1992. During these meetings, we had the benefit of presentations by the NRC staff, its consultants, and representatives of industry. We also had the benefit of the documents referenced.

We commented on the earlier version of the Regulatory Guide and on the interim SRP in our report of October 11, 1990, and on an early version of the License Renewal Rule in our report of April 11, 1990. Since these reports were issued, the NRC staff has issued a final rule, which incorporates some significant changes from the earlier version, and has also received and evaluated public comments on the 1990 Regulatory Guide and the SRP proposals. The now-proposed Regulatory Guide and SRP are intended to reflect the final rule, the public comments, and ACRS comments. Because there have been significant changes in these documents, the staff proposes to publish them for another round of public comments.

In addition, in its development of the license renewal process, the staff has identified a concern about the adequacy for extended service of some existing plant components in accommodating metal fatigue. Generally, plants were designed with a 40-year life expectation. Operation for 60 years could mean that some fatigue limits would be exceeded. A BTP has been proposed as a basis for staff evaluation of fatigue status in the license renewal process.

In general, the new versions of the Regulatory Guide and SRP seem to be improvements and appropriately reflect changes made in the rule. We have no objection to their being published for public comment. We have, however, three comments at this time:

1. The major concern expressed in our October 11, 1990 report was about control of the process for selection of Structures, Systems and Components (SSCs) "important to license renewal." Without adequate constraints, reviewers are likely to expand

the list of SSCs beyond that needed to provide reasonable assurance that aging of important plant systems will be adequately controlled. This could be carried to a point of being unnecessarily burdensome on licensees, thereby discouraging plant owners from seeking license renewals. We were told that this concern was being addressed by improving the definition of SSCs. We have reservations about whether this is adequate and retain our concern.

We were told that estimates by management of the lead plant involved in the license renewal effort indicate that 65 percent of the components in the plant will be on the SSC list and that the cost of developing the required program could be as much as \$25 million. The length of the SSC list is obviously a substantive issue. We believe some better mechanism for control should be established. Creation of a review function for each plant's SSC list at a senior level within the agency, perhaps something similar to the CRGR, should be considered.

2. Requirements imposed on licensees with the Maintenance Rule have much commonality with requirements under the License Renewal Rule. We asked the staff presenters whether consideration had been given to combining or at least coordinating the two rules. Apparently none has been. We believe this is a mistake. Requirements for the two rules have been developed in different branches of the Office of Nuclear Reactor Regulation. The two sets of requirements have somewhat, but not greatly, different scopes and purposes. We were told that a licensee who decides to apply for license renewal and meets the requirements of the rule will not automatically meet the Maintenance Rule because of some scope differences. Nor will the opposite be true. Thus, a licensee will have to meet both sets of requirements over the life of a plant.

One interesting difference in the proposed implementation of these two rules is in how PRA would be used. With the Maintenance Rule, risk arguments will be accepted by the staff for either excluding or including specific items. In the case of the License Renewal Rule, we were told that risk arguments would be accepted by the staff for inclusion but not for exclusion of specific items in the plant from the SSC list.

We note that a reliability assurance program is being developed for the ABWR and understand that such programs will be required for all ALWRs. These programs should be coordinated with the requirements of the License Renewal and Maintenance Rules.

We have often commented on the need for greater coherence among the many parts of the overall fabric of NRC regulatory policies and practices. The Commission has recently spoken on the need to reduce unnecessary regulatory burden on licensees. We recommend that before the Maintenance Rule and License Renewal Rule are implemented, a comprehensive study be carried out to determine if combining the rules would foster the aims

of increased regulatory coherence and reduced regulatory burden.

3. The BTP on metal fatigue appears to require more of licensees than is justified. The BTP would require evaluation of the fatigue life (cumulative usage factor, CUF) in certain components of the reactor coolant pressure boundary based on 60 years of service. The actual transient history could be used, resulting in a lower CUF than that assumed in the original design, but it would require the replacement of any component which exceeded one-third of the ASME Section III design life. Calculating the CUF can be time-consuming, and using it in the way suggested by the BTP will usually require the replacement of components which would otherwise perform satisfactorily for the remaining life of the plant.

The industry position is that the calculated CUF should not be regarded as an absolute service limit. Industry spokesmen suggested that equally appropriate and more economical approaches are available and should be used. We believe the staff proposal is unreasonable. A better approach would be to use the procedures of ASME Section XI for inspection and repair. Consideration might be given to requesting a clarification from the appropriate ASME Code Committee on what it believes should be done if CUF approaches 1.0 for a component. This would be time-consuming, but time does seem to be available in this instance.

Additional comments by ACRS Members William Kerr, Thomas S. Kress, Harold W. Lewis, and Charles J. Wylie are presented below.

Sincerely,

David A. Ward
Chairman

Additional comments by ACRS Members William Kerr, Thomas S. Kress, Harold W. Lewis, and Charles J. Wylie.

We do not wish to address the details of the elaborate regulatory structure the staff proposes to erect to support its review of license extension applications for currently operating nuclear plants, but only to provide some perspective. We are impressed by the contrast between the licensing of nuclear plants and of other complex systems, like aircraft. Both nuclear plants and aircraft are complex systems, each synthesized from components of a wide variety of effective lifetimes, rates and modes of degradation, and importance to the safety of the system. In the nuclear case, a term license is issued for the system--in the aviation case the aircraft airworthiness certificate is permanent, provided the maintenance and replacement of the aging components are managed in a timely and effective manner. That seems to us to be far more effective, and is consistent with the Committee's recommendation to

coordinate this plan with the Maintenance Rule. The purpose of licensing is to ensure and maintain the protection of the public health and safety--it is not an end in itself.

Of course we recognize that initiatives in this matter are constrained by the terms of the Atomic Energy Act, but it is not unthinkable that laws can be adjusted if it is in the public interest to do so. This was not an important matter forty years ago--it is now.

References:

1. Memorandum dated June 10, 1992, from John W. Craig, Office of Nuclear Reactor Regulation, NRC, for Raymond F. Fraley, Advisory Committee on Reactor Safeguards, Subject: Request for Review of Branch Technical Position on Fatigue for License Renewal, with enclosures
2. Memorandum dated June 5, 1992, from John W. Craig, Office of Nuclear Reactor Regulation, NRC, for Raymond F. Fraley, Advisory Committee on Reactor Safeguards, Subject: Request for Review of Interim Regulatory Guide and Standard Review Plan for License Renewal, with enclosures