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The Honorable Ivan Selin  
Chairman  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Chairman Selin:

SUBJECT: ELECTRIC POWER RESEARCH INSTITUTE ADVANCED LIGHT WATER  
REACTOR UTILITY REQUIREMENTS DOCUMENT -- VOLUME II,  
EVOLUTIONARY PLANTS

During the 387th and 388th meetings of the Advisory Committee on Reactor Safeguards, July 9-11 and August 6-8, 1992, we reviewed the NRC staff's Final Safety Evaluation Report (FSER) for Volume II of the Electric Power Research Institute's (EPRI) Advanced Light Water Reactor (ALWR) Utility Requirements Document (URD) for Evolutionary Plants. Our Subcommittee on Improved Light Water Reactors held meetings on June 17-18 and July 27, 1992, to review this subject. During these meetings, we had the benefit of discussions with representatives of the NRC staff and EPRI. We also had the benefit of the documents referenced.

In the early 1980s, EPRI established the ALWR program to support the United States utility industry efforts to ensure a viable nuclear power generation option for the 1990s and beyond. The objective of the program was to ensure that future nuclear power plants would be safer, simpler, more robust with greater margins, more easily operated and maintained, and more certain of being constructed and licensed without delays. This was accomplished using utility experience, by establishing design philosophy, producing design criteria and guidance to achieve the objective, and addressing the policies and regulations of the NRC.

The EPRI ALWR URD is a compendium of technical requirements for design, construction, and performance of ALWR nuclear power plants for the 1990s and beyond. The URD consists of three volumes:

Volume I, "ALWR Policy and Summary of Top-Tier Requirements," is a management-level synopsis of the URD, including the design objectives and philosophy, the overall physical configuration and features of a future nuclear plant design, and the steps necessary to take the proposed ALWR design criteria beyond the conceptual design state to a completed, functioning power plant.

Volume II, "ALWR Evolutionary Plant," consists of 13 chapters and contains utility design requirements for an evolutionary nuclear power plant (approximately 1350 Mwe).

Volume III, "ALWR Passive Plant," contains utility design requirements for passive nuclear power plants (approximately 600 Mwe).

We have followed the development of the EPRI ALWR program from its inception and offered suggestions regarding safety improvements on several occasions. We also held numerous subcommittee and Committee meetings to consider and discuss the development of the EPRI URD program and the NRC staff's reviews.

The staff's review of the URD was conducted as described in NUREG-1197. As noted therein, the staff used NUREG-0800, "Standard Review Plan (SRP) for the Review of Safety Analysis Reports for Nuclear Power Plants," for review guidance. In addition, the staff's review reflects the requirements of 10 CFR 52, the Commission's policy statements on severe accidents, and the safety goals.

Although the SRP was used by the staff as guidance, the level of detail in the EPRI submittal did not permit a review of its completeness. (The SRP was written to support the review of safety analysis reports on specific plant designs for which a significant amount of design and construction information was available.) The staff conducted its review with the understanding that EPRI design criteria would meet all current regulations, except where deviations were identified. The staff's review of the URD focused primarily on determining whether the EPRI criteria did or did not conflict with current regulatory requirements.

In its review of Volume II of the URD, the staff identified a number of issues that will require additional information before the staff can reach a final conclusion. Initially, the staff divided the outstanding issues into three categories: (1) open policy issues on which the staff has proposed a position, but for which the Commission has not yet provided guidance, (2) open issues that must be satisfactorily resolved before the staff can complete its review of the URD, or (3) confirmatory issues for which the staff will ensure follow up of commitments in the URD.

At this date the staff has identified 21 open policy issues that are included in a draft Commission paper, "Issues Pertaining to Evolutionary and Passive Light Water Reactors and Their Relationship to Current Regulatory Requirements" that was issued on February 27, 1992. We provided our recommendations on the open policy issues pertaining to evolutionary plants in our letters which addressed SECY-90-016, SECY-91-078, and the draft SECY paper of February 7, 1992.

The staff has handled the remaining 410 open issues which were identified in the FSER for Volume II by classifying them as "Vendor or Utility Specific Items" which must be satisfactorily addressed during the staff's review of a vendor- or utility-specific application. The staff plans to issue a supplement to the FSER after all evolutionary policy issues have reached final resolution. The staff indicated that they plan to interact with EPRI in an attempt to resolve significant open issues which may be resolved generically, and to include in a supplement any which are resolved.

We recommend generic resolution of as many of these issues as possible.

We commend EPRI for developing a comprehensive set of requirements. These will aid in the design of nuclear plants which will be safer, simpler, more robust, and more easily operated and maintained.

We commend the NRC staff for a very thorough review of the EPRI ALWR Evolutionary URD, and its work with EPRI to identify and resolve many issues relevant to licensing future LWRs. We recognize the NRC staff's position that its review necessarily is incomplete.

Sincerely,

David A. Ward  
Chairman

References:

1. SECY-92-172, dated May 12, 1992, from James M. Taylor, Executive Director for Operations, for the Commissioners, Subject: Final Safety Evaluation Report for Volume II of the Electric Power Research Institute's Advanced Light Water Reactor Requirements Document, including the following enclosures:
  - Draft Safety Evaluation Report for Volume I, "Program Summary of the NRC Review of the Electric Power Research Institute's Advanced Light Water Reactor Utility Requirements Document," prepared by the Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, dated May 1992
  - Safety Evaluation Report for Volume II, "NRC Review of the Electric Power Research Institute's Advanced Light Water Reactor Utility Requirements Document for Evolutionary Plant Designs," prepared by the Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, dated May 1992
2. Advanced Light Water Reactor Utility Requirements Document, Volume II, "ALWR Evolutionary Plant," Chapters 1-13, through Revision 4, dated April 1992, Prepared for Electric Power Research Institute