

YANKEE ATOMIC ELECTRIC COMPANY (50FR 11882)

PROPOSED RULE PR-50 ④

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May 23, 1985
FYC-85-07

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USNRC

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Secretary of the Commission
United States Nuclear Regulatory Commission
Washington, DC 20555

OFFICE OF SECRETARY
DOCKETING & SERVICE
BRANCH

Attention: Docketing and Service Branch

Subject: Comments Pertaining to the Proposed Policy for Regulation of
Advance Nuclear Power Plants (50FR11882, March 26, 1985)

Dear Sir:

Yankee Atomic Electric Company appreciates the opportunity to comment on the proposed policy statement. Yankee Atomic owns and operates a nuclear power plant in Rowe, Massachusetts. Our Nuclear Services Division also provides engineering and licensing services for other nuclear power plants in the northeast including Vermont Yankee, Maine Yankee, and Seabrook.

Yankee Atomic supports the Commission's dual goals of encouraging early interaction between government and industry and minimizing complexity and uncertainty in the regulatory process with regard to advance reactors. The Commission believes that simplicity of design is a desirable characteristic. We agree. We note with great pride that such a concept has been demonstrated to be safe and reliable at our Yankee plant, which is celebrating its 25th year of operation.

The proposed policy statement queries whether advance reactor designs ought to seek enhanced or increased margins of safety. The public safety record of current reactor designs is outstanding. We think the proper objective of future designs should be to obtain comparable levels of safety in a simpler and more easily demonstrable fashion.

When read in light of its legislative background, the breadth of the proposed policy is unclear to us. In order to avoid impacting reactors which are currently operating or under construction, we suggest that the policy statement be revised to clearly state that it pertains only to "different reactor designs" such as Pius, HTGR and the ongoing EPRI effort, and not to safety systems to be incorporated into reactors of current design.

We have developed several other comments which address details of the proposed policy including responses to the six specific questions posed by the Commission, and present these in the attachment to this letter.

Very truly yours,

D. W. Edwards

D. W. Edwards
Director of Industry Affairs

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Attachment

Dennis Rathbun, H-1013
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Acknowledged by *5/24/85 pd*

ATTACHMENT
TO FYC-85-07

Additional Comments of Yankee Atomic Electric Company
on Proposed Policy for Regulation of Advance Nuclear Power Plants

I. Comments on Summary of Proposed Policy Statement

- o The summary includes the statement, "[s]ince the wealth of analyses, research, development and operating experience provide useful insight to designers, it is also expected these reactor plants will have an enhanced margin of safety". If this statement is intended to imply that future reactor designs will be required to meet stricter safety criteria than current generation designs, we disagree. The actual public safety record of existing nuclear power plants to date has been an unprecedented success. The objective of future designs should be to attain comparable levels of performance in a simpler and more demonstrable fashion.
- o The summary also states that "[i]t is anticipated that these designs will reflect the benefits of significant research and development work, and include the experience gained in operating the many power and developmental reactors both in the United States and throughout the world". In order for the designs to reflect experience from outside the United States, it will be necessary for the NRC to obtain and accept data generated in other countries. Thus the policy should include a statement to the effect that the NRC will actively pursue the development of mechanisms for the timely and effective incorporation of data from other countries into the licensing process.

II. Answers to Questions posed in Proposed Policy Statement

1. Question Number 1 asked whether performance standards or prescriptive regulations should be used by NRC. The use of performance standards in lieu of prescriptive regulations is strongly favored. Further, to maximize the effectiveness of regulation in protecting the public, the performance standards should be focused on and limited to those aspects of design and operation that are clearly related to mechanisms for the exposure of the general public to high levels of radiation. The early involvement of the NRC in the review of the design coupled with an emphasis on standardization should preclude the need for specification of relatively detailed design considerations.
2. Question Number 2 concerns safety margins. The inquiry "[s]hould the regulations for advanced reactors require more inherent safety margin in their design" is sufficiently ambiguous when comparing widely differing concepts as to be of little or no value in providing guidance to the designer. In addition, as stated above, the performance of operating nuclear power plants to date is exemplary from the standpoint of public safety. Thus, the emphasis for future reactor designs should be on simplicity and demonstrability of safety features. We see no justification for an arbitrary requirement of "more inherent safety margin".

3. Question Number 3 asked what regulations should be mandated in order to achieve and maintain safe shutdown conditions. The primary issue here is the definition of "safe shutdown conditions". The policy should foster a concept specific evaluation of safe shutdown conditions, keeping in mind that the closer these conditions are to normal operating conditions, the simpler the systems and actions required to achieve safe shutdown will be.
4. By question Number 4, the NRC asked if advance reactor design criteria should be based on existing regulations. A new set of general design criteria should be established for each advanced concept. Detailed criteria should be developed by the cooperative involvement of the NRC and industry as a concept evolves, subject to final approval by the NRC. The NRC should encourage industry initiatives to develop proposed design criteria.
5. Question Number 5 asked if a few large systems should be encouraged over multiple subsystems. The NRC should encourage concepts which minimize the portion of the plant that has the potential to contribute to large releases of radioactive material. This would allow the safety review to focus effectively on the protection of the health and safety of the public. Questions with regard to tradeoffs between fewer large systems and multiple subsystems would be better left to the review of specific concept designs.
6. Finally, question Number 6 concerned the degree of proof needed to determine that a concept design is based on demonstrable technology. The degree of proof required will be a function of the extent to which the concept design differs from designs for which extended operating experience is available and applicable. This issue will be strongly affected by the concept under consideration and the ability to factor in experience from other countries as discussed above. In considering this issue, it is helpful to separate proof of the concept design from the standpoint of public safety, from proof of the concept design from the standpoint of reliable and economic power generation. To the extent that safety issues can be limited to a small number of functions required of a few systems as discussed in our response to Question 5, a prototypical demonstration may not be required. However, it is reasonable to expect that the overall design of a power plant concept will evolve and improve during the course of design, construction, and operation of a demonstration plant, and that some of the changes may affect safety issues. To proceed to final licensing of a commercial facility without a prototype demonstration would require a determination by the NRC that only a very limited portion of the plant is safety related and subject to NRC review and approval.