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May 28, 1985

DOCKETED  
USNRC

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Secretary of the Commission  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555OFFICE OF SECRETARY  
DOCKETING & SERVICE  
BRANCH

Attention: Docketing and Services Branch

Subject: Federal Register, Proposed Policy Statement,  
10 CFR Part 50, Proposed Policy for Regulation  
of Advance Nuclear Power Plants

Dear Sir:

The NRC requested in a Federal Register Notice dated March 26, 1985, (Vol. 50, No. 58, FR 11882-11884), comments on the subject policy statement and the six questions asked by the Commission. In response, Duke Power Company offers the following for consideration.

General Comments, 10 CFR, Part 50

The intent of the Commission to improve the licensing environment for advanced nuclear power reactors is commendable. It is paramount that it be understood that this intent is not a goal to be worked toward but rather a necessary prerequisite to the serious consideration of such systems by the utility industry.

In the concluding statement in the Summary, it is stated that "the Commission will keep the public informed of its judgment on the known and unknown safety aspects of advanced designs as they come before the Commission." Such judgments should be carefully expressed in terms of relative impacts on the public health and safety. It is not a proper regulatory role to unduly influence, positively or negatively, the selection of alternative concepts at the conceptual design stage.

The licensing environment will facilitate public confidence only by a cooperative independence between industry and regulator. Independence must be established without aggressive adversarial confrontations.

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Acknowledged by card.....

DS 10/10  
add: Dennis K. Rathbun, H-1013  
James D. Beckley, H-1013

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Comments on Specific Commission Questions:

Question 1

Should NRC's regulatory approach be revised to reduce dependence on prescriptive regulations and, instead, establish less prescriptive design objectives, such as performance standards? If so, in what aspects of nuclear power plant design (for example, reactor core power density, reactor core heat removal, containment, and siting) might the performance standards approach be applied most effectively? How could implementation of these performance standards be verified?

Comments

The NRC's regulatory approach should be revised to reduce dependence on prescriptive regulations. Design criteria and the level of proof necessary to demonstrate compliance with the design criteria should be established early in the development stage of advanced concepts. Performance standards in specific areas may be an appropriate adjunct to design criteria if a direct relationship to public health and safety is established. Performance standards beyond the public health and safety area may be of vital importance to the industry but are not a proper concern for the NRC.

In any event, simply shifting from current design oriented regulations to performance standards is not a guarantee of lack of prescription. In the past and present regulatory environments, establishment of design criteria led to more requirements limiting or dictating how the design criteria must be met. It is equally likely that established performance standards would be followed by requirements dictating how the standards would be met.

The management structure within NRC and industry, and the methods of interaction between regulator and industry, must be examined to facilitate a cooperative independence which will reduce the real or perceived need for prescriptive regulations.

Question 2

Should the regulations for advanced reactors require more inherent safety margin in their design? If so, should the emphasis be on providing features that permit more time for operator response to off-normal conditions, or should the emphasis be on providing systems that are capable of functioning under conditions that exceed the design basis?

Comments

Inherent safety is a term that is difficult to define, and if not carefully defined, can lead to arbitrary requirements. Operator response time should be carefully considered and should be consistent with the complexity of system design coupled with the diagnostic capabilities provided.

Capabilities beyond the design basis should not be required. The design basis should be carefully established based on system characteristics and the established safety goals. Events beyond the design basis should be considered only in light of the established safety goals.

#### Question 3

Should licensing regulations for advanced reactors mandate simplified designs which require the fewest operator actions, and the minimum number of components needed for achieving and maintaining safe shutdown conditions, thereby facilitating operator comprehension and reliable system function for off-normal conditions?

#### Comments

Licensing requirements mandating "simplified design", "fewest operations", "minimum components" would of necessity be prescriptive and arbitrary and should not be imposed.

#### Question 4

Should the NRC develop general design criteria for advanced reactors by modifying the existing regulations, which were developed for the current generation of light water reactors, or by developing a new set of general design criteria applicable to specific concepts which are brought before the Commission?

#### Comments

A set of general design criteria should be established to assure protection of the health and safety of the public. Specific design criteria should be avoided since they would become progressively more restrictive and may totally bias the options pursued.

#### Question 5

Should the NRC favor advanced reactor designs that concentrate the primary safety functions in very few large systems (rather than in multiple subsystems), thereby minimizing the need for complex benefit and cost balancing in the engineering of safe reactors?

#### Comments

Favoring advanced designs that concentrate primary safety functions into a very few large systems as opposed to several smaller systems is not appropriate. Such choices are more properly engineering and management decisions based on design safety margins, operator response times, economics, and other factors including a defense in-depth philosophy.

Question 6

What degree of proof would be sufficient for the NRC to find that a new design is based on technology which is either proven or can be demonstrated by a satisfactory technology development program? For example, is it necessary or advisable to require a prototypical demonstration of an advanced reactor concept prior to final licensing of a commercial facility?

Comments

The need for a prototypical demonstration of an advanced reactor is dependent upon the extent to which a particular concept relies upon unproven technology. Confidence in a new concept will be an important factor to industry as well as the regulator. Determining the degree of proof required to demonstrate that a design meets the applicable regulatory requirements must be a part of the early interaction between industry and the NRC. A collective judgment will be necessary on a specific concept basis. It should be realized that a determination that prototypical demonstration is required may significantly impact the choice of a particular concept.

We appreciate this opportunity to provide you with our comments. We trust that our comments will be considered and that the commission will move promptly to complete this package of rulemaking.

If there are any questions or problems concerning this subject, please advise.

Very truly yours,

*H. B. Tucker / BT*

Hal B. Tucker

JWD:smh