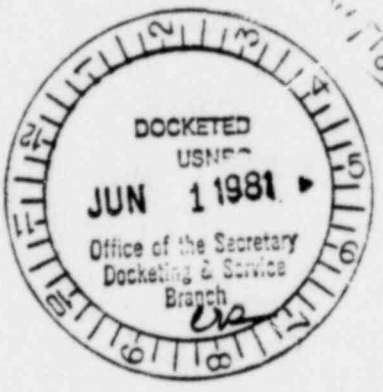
Safety Goal Project
(45 FR 71023)

TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

May 26, 1981



Secretary of the Commission
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Attention: Docketing and Service Branch

Dear Sir:

TVA is pleased to provide comments on the preliminary statement of policy considerations concerning the development of a safety goal and associated NUREG-0764, "Toward a Safety Goal: Discussion of Preliminary Policy Considerations," and NUREG-0739, "An Approach to Quantitative Safety Goals for Nuclear Power Plants," as noticed in the March 26, 1981 Federal Register notice (46 FR 18827-18830).

TVA endorses and strongly supports the NRC efforts to establish a safety goal. We believe it is important that the public, industry, and all levels of government be involved in the developmental process. However, it is equally important that a comprehensive goal be developed in a timely manner so we can assess our plants in the operating and construction phase and ensure that they satisfy the safety goal and that the health and safety of the public are adequately protected. Also, we believe that it is important that a prescribed methodology for verification of the safety goal be developed simultaneously with the safety goal.

We believe that the ACRS proposal is a good starting point for further discussion and that it contains most of the key principles that we consider essential to a reasonable and comprehensive safety goal. However, we believe that, if some of the complexity were removed from the ACRS proposal and a simpler safety goal established, this would assist in the issue of public perception and understanding of the safety goal. Enclosed are our responses to the seven questions as presented in the Federal Register notice.

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We encourage the review of other reasonable safety goal proposals from the industry, public, etc., and the publication for comment of a draft safety goal policy which addresses a proposed implementation methodology and schedule. Since the content and interpretation of the safety goal policy will have a large impact on TVA's extensive nuclear commitment, we welcome the opportunity for review and comment.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Regulation and Safety

Enclosure
cc (Enclosure):
Executive Secretary
Advisory Committee on Reactor Safeguards
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Mr. Fred Stetson
AIF, Inc.
7101 Wisconsin Avenue
Washington, DC 20555

ENCLOSURE

TVA'S COMMENTS

1. Question 1(a):

Among the criteria for selection of an approach to safety goal formulation that are presented, which are particularly important? Unimportant?

Question 1(b):

Should additional or different criteria be considered? What criteria and with how much emphasis?

Response:

There are three basic principles which TVA considers important to a reasonable and comprehensive safety goal:

1. The safety goals (which imply risk) as applied to nuclear power facilities should be commensurate with the safety goals of other competing technologies.

2. The safety goals should take into account optimum allocation of the nation's resources over the long term.

3. No individual should bear an unreasonable risk.

While each of the five illustrative criteria for goals listed in 1(a) may be necessary, the criteria of simplicity should be of primary consideration. We believe unnecessarily complex goals are not consistent with the degree of precision in the results obtained from risk assessments.

2. Question 2(a):

Which of the following are particularly important to include in a safety goal:

Some general approach to risk acceptability?

Response:

Yes, the concept of risk and safety goals should be approached in view of the three basic principles described in (1) above.

Question 2(b):

Quantitative safety goals?

Response:

Yes, attention should be focused on the development of quantitative safety goals. Quantative safety goals provide a common basis for evaluation and comparison.

Question 2(c):

Qualitative - even subjective - standards?

Response:

A qualified yes. Care must be exercised, however, since qualitative goals frequently attempt to define an individual(s) perception of risk and as such cannot be measured on a common basis.

Question 2(d):

Approach to safety-cost tradeoffs?

Response:

Safety-cost tradeoff criteria should be available in order to provide a measure of incremental risk reduction. Its role should be in consideration of additional risk reduction after the primary safety goals are met or are exceeded. As such, safety-cost tradeoff criteria should be considered a secondary goal.

Question 2(e):

Goals for future safety improvements?

Question 2(f):

Standards for determining when new requirements should be applied retroactively?

Response:

The implication of these questions is that having defined reasonably safe according to safety goals, should we require new plants to be safer? Or further, as technology advances should we require more stringent safety goals on plants regardless of their age? To answer this, one should remember that the nuclear safety goals should be commensurate with the safety goals, cost, and benefits of other technologies as much as practicable. If and when changes occur in other technologies which result in changes in their risk, cost, and benefits, nuclear plant risk should change accordingly. The safety goals should be consistent with optimum allocation of the nation's resources over the long term.

3. Question 3(a):

Among the approaches to safety goal formulation that are discussed, what approach or combination of approaches is particularly appropriate? Inappropriate? Why?

Question 3(b):

Should any other approach be considered? What approach?

Response:

It must be emphasized that the seven safety goal characteristics must be ultimately considered as a whole. However, in addressing the seven individual characteristics listed, we believe the TVA concept of a safety goal would reflect the following:

1. Both individual and societal goals
2. See response 2(b) and 2(c)
3. Ends-oriented
4. Goals commensurate with other technologies
5. Both individual and societal goals
6. Site (or region) independent
7. Atemporal

We believe these characteristics, taken as a whole, are consistent and can provide for a simple, yet effective safety goal.

4. Question 4(a):

Among the approaches to dealing with uncertainty that are discussed, what approach or combination of approaches is particularly appropriate? Inappropriate?

Question 4(b):

Should any other aporoach be considered? What approach?

Response:

We believe the most appropriate way to control uncertainty is to know where the uncertainty is present. It can then be controlled by the consistent use of a prescribed methodology for calculation. The use of a prescribed methodology provides a consistent treatment of the uncertainty and allows for a meaningful comparison between risk analyses and compliance with the safety goals. Also, by knowing where the uncertainty is present, attention can be focused on its improvement. The nuclear industry is presently defining acceptable methods of modeling and calculation.

5. Question 5(a):

What should be some of the characteristics of safety requirements?

What should be the role of safety-cost tradeoffs?

Response:

The purpose and role of safety-cost tradeoffs is provided in 2(d) above.

Question 5(b):

To what extent should benefits of nuclear power, absolute and relative to alternatives, enter safety-requirements decisions?

Response:

As stated in the principles for safety goals, risk criteria must be examined in relation to the risks, cost, and benefits of other technologies now present.

Question 5(c):

To what extent is it appropriate for requirements for new and previously approved plants to differ?

Response:

The safety goals should apply equally to both new and previously approved plants.

Question 5(d):

Should a safety goal be applied directly to cases in order to attain a similar degree of safety from case to case (even though that may result in specific design and operation requirements differing according to circumstances)? Or should the goal be applied generically and have requirements, rather than estimated degree-of-safety results, be uniform?

Response:

We have no comment.

Question 5(e):

To what extent should the goal reflect protection of individuals regardless of numbers of persons affected, and to what extent should it reflect total, integrated population or societal effects?

Response:

There should be dual goals, one for the maximum exposed average individual and one for the exposed population. The resources of society over the long term should be optimized, but no individual should bear an unreasonable risk.

Question 5(f):

To what extent should equities of distribution of benefits and adverse impacts influence requirements?

Response:

Attempts to create equity will be difficult due to the complex interactions as well as changing conditions and attitudes; easing of clearly defined inequities should be attempted.

Question 5(g):

Should the safety goal reflect increased aversion to risk of high consequence, even at low probability?

Response:

Risk aversion is an extremely difficult concept to define and should not be attempted in formulation of these safety goals. Aversion factors would provide unnecessary emphasis on low probability, high consequence events and would further bias comparisons with other technologies.

Question 5(h):

What is the proper balance between stability of requirements and flexibility for modification as knowledge develops and insights change?

Response:

The goals should be based on the effects on man and society which are constant and should not be based on particular designs or other factors which are subject to change.

6. Question 6(a):

How should the stringency of nuclear power plant safety requirements compare with current practice?

Question 6(b):

How should stringency of the safety goal compare with risks accepted from other (nonnuclear) electrical energy sources and with risks arising in various other contexts?

Response:

Since the purpose of the safety goals is to provide a level of protection for individuals and society as a whole, the stringency associated with the risk from nuclear power generation should be comparable to the stringency associated with the risk from other sources.

7. Question:

The Commission invites comments on the ACRS proposal and on the other specific proposals described in the paper, and would welcome any alternative proposals or suggestions.

Response:

See our cover letter.