



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS  
WASHINGTON, D. C. 20555

ACRS R-1043

PDR

August 9, 1983

Honorable Nunzio J. Palladino  
Chairman  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555

Dear Dr. Palladino:

SUBJECT: ACRS COMMENTS ON PROPOSED NRC SAFETY GOAL EVALUATION PLAN

During its 280th meeting, August 4-6, 1983, the Advisory Committee on Reactor Safeguards prepared comments on the NRC Staff's Evaluation Plan for the proposed Safety Goal as described in NUREG-0880, "Safety Goals for Nuclear Power Plant Operation," Revision 1 (Reference 1). The ACRS had previously commented on the Safety Goal Policy Statement in reports to you dated June 9 and September 15, 1982 and January 10, 1983. We plan to continue discussions with the NRC Staff during the implementation of the Evaluation Plan and may submit additional comments to you in the future.

In NUREG-0880 the NRC Staff presented a summary which identifies a variety of tasks that will be part of the Evaluation Plan. Responsibility for the tasks is assigned and a schedule is given. The tasks described could provide much of the information needed to evaluate the usefulness of the proposed safety goals. However, the magnitude of some of the tasks appears to be great enough that we doubt that information of the kind and quality needed to make decisions will be available on the schedule presented. For example, a principal task described would have available, by early 1984, a reference document that assesses existing PRAs and uses this assessment to estimate and evaluate the significance of uncertainties, to evaluate dominant accident sequences, and to identify strengths and weaknesses of existing methods. This is a formidable task considering the variety of methods and PRAs that must be studied.

The way in which decisions will be reached during the evaluation process and methods for providing direction to those who will eventually conduct PRAs that are to be used in decision making is alluded to in several parts of the Plan. At this time the description of the process is perhaps understandably vague. However, these matters are at the heart of the evaluation process, and we will want to comment on them as they are developed. For example, we have previously commented on the importance of a rigorous peer review process in the determination of appropriate applications of probabilistic risk analysis. This area is not explicitly mentioned in the current document.

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The Evaluation Plan suggests an initial focus on the core melt frequency design objective for individual plants, once the evaluation period has ended. The ACRS called attention to difficulties in this approach in its July 5, 1983 letter to you on ATWS and in its July 13, 1983 letter to W. J. Dircks on Unresolved Safety Issue A-44, "Station Blackout." We recommended in those reports that risk to the public also be considered, rather than core melt frequency only, especially in situations in which various avenues for core melt might produce markedly different risks.

We also have some general comments on the evaluation process and on the goals. We note the statement (Ref. 1, p. 38), "One of the primary goals of this evaluation program is the development of an implementation plan at the conclusion of the evaluation period." In order to prevent an interpretation that the results of the Evaluation Plan are a forgone conclusion, we suggest that one of the options considered should be whether safety goals and design objectives can be effectively integrated into the regulatory process.

We also observe (Ref. 1, p. 38), "During this period [the 90-day public comment period] it is expected that preliminary information on new radiological source terms will become available and the staff will examine the effects that this information will have on comparison of risk estimates with the proposed design objectives for individual and societal mortality risks." We are skeptical that new information having a significant effect on this comparison has become available during the comment period.

We believe there is a possible misinterpretation of the statement (Ref. 1, p. 40), "Also, compliance with current regulations (principally Parts 20, 50, and 100) generally provides adequate protection against the risks from anticipated transients and low consequence accidents as well as design basis accidents; therefore, these need not be analyzed to demonstrate conformance with the safety goals. Thus, to evaluate the safety goal policy statement during the evaluation period, this action plan will focus on the risks from accidents involving potential core-melt." Since current PRAs indicate that anticipated transients and small LOCAs make significant contributions to core melt probability, we question wording which might suggest that these are being ignored. Further, we note that compliance with the listed regulations places no limit on the number of anticipated transients or LOCAs expected to occur during the life of a plant and thus does not deal with risk on a quantitative basis.

We observe that the proposed safety goals contain no design objectives for containment performance. It is stated (Ref. 1, p. 43) that the evaluation process will include a review of whether containment performance is to be a specific design objective. Discussions with the NRC Staff indicate that they have concluded that uncertainties in containment performance are too

great to make a performance objective meaningful at this time. It is strange that the NRC Staff considers the uncertainty in describing the progress of a large scale core melt to be significantly less than the uncertainty in describing containment performance. We continue to believe that containment performance objectives are important as an indication of the need for mitigation, just as the core melt design objective is an indication of an emphasis on accident prevention.

We note the reference to further work on analyses of the contribution of external events to core melt probability. We look forward to learning how, "PRA will be used to determine generically whether the risk attributable to external hazards is large enough to warrant routine consideration in safety goal decisions."

We also wish to call special attention to the following public comments which we consider to be particularly pertinent (References 2-6).

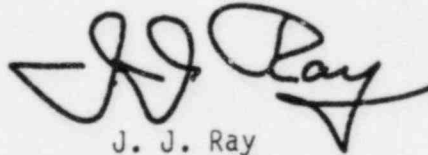
- . A Task Force on Safety Goals/Objectives of the Council of the European Communities included the following in its comments:
  - additional criteria should be defined and evaluated, besides that of a core melt
  - the question of multi-unit stations needs further examination
  - detrimental effects in addition to fatal health effects require evaluation
  - a collective risk reduction tool should not be used if individual risk is controlling
  - the rationale for the form of the societal quantitative guideline should be investigated
- . The Electric Power Research Institute (EPRI), among others, emphasized that the implementation plan to be developed as a result of the Evaluation Plan should be one which assures the appropriate, consistent application of the safety goals. Thus, EPRI recommends that the development of clear guidance and instruction to users of the goals be an explicitly stated objective.
- . R. Easterling of Sandia National Laboratories raises a number of fundamental and frequently neglected questions concerning the way in which data are currently being interpreted or ignored in existing PRAs.

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- . E. Gilby of the United Kingdom raises several issues including the concept of requiring two additional safety goals, one covering the extent and time period for which areas of land would be contaminated to unacceptable levels and another concerning the numbers of people who would need to be evacuated.
- . R. B. Bradbury of Stone and Webster Engineering Corporation indicated that, "Item 3 deals with whether changes in source term assumptions will impact the safety goals or require changing the design objectives. Our belief is that the source term should be reduced significantly but this should not be considered a reason for changing the safety goals or design objectives. A reduced source term should facilitate demonstration of compliance with the current safety goals and design objectives."

We commend the NRC Staff for progress toward the development of an Evaluation Plan. We look forward to reviewing further developments and conclusions of the program as they evolve.

Sincerely,



J. J. Ray  
Chairman

References:

1. U. S. Nuclear Regulatory Commission, "Safety Goals for Nuclear Power Plant Operation," USNRC Report NUREG-0880, Revision 1, dated May 1983
2. Council of the European Communities Task Force on Safety Goals/Objectives comments on safety goals dated May 1983
3. Letter dated June 13, 1983 from J. J. Taylor, Electric Power Research Institute, to Secretary of the Commission, Subject: Comments on the development and evaluation of safety goals
4. Letter dated June 2, 1983 from R. G. Easterling, Sandia National Laboratories, to Secretary of the Commission, enclosing comments on the Commission's Safety Goal Policy Statement
5. Letter dated June 16, 1983 from E. V. Gilby, United Kingdom, to W. J. Dircks, Executive Director for Operations, commenting on the Safety Goal Policy Statement
6. Letter dated June 8, 1983 from R. B. Bradbury, Stone & Webster Engineering Corporation, to Secretary of the Commission, Subject: Safety Goal Development Program