



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

January 10, 1983

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

Dear Dr. Palladino:

SUBJECT: ACRS COMMENTS ON PROPOSED SAFETY GOAL POLICY STATEMENT

During its 273rd meeting, January 6-8, 1983, the Advisory Committee on Reactor Safeguards completed a limited review of the drafts of the proposed safety goal policy statement dated December 16, 1982 and January 7, 1983. The reference documents and the associated draft Staff action plan dated December 14, 1982 were not available to the Committee prior to the meeting; hence, the limitations on the extent of this review.

The ACRS has made prior comments on a draft NRC position and questions regarding safety goals in reports to you dated June 9 and September 15, 1982. The ACRS commented on a proposed NRC Staff draft implementation plan in another report dated September 15, 1982. We reiterate the comments made in these reports. We note that few of our recommendations appear to be reflected in the revised draft safety goal policy statements.

We make the following limited observations concerning the December 16, 1982 and January 7, 1983 versions of the proposed safety goal policy statement.

1. In NUREG-0880, the second qualitative goal stated that "Societal risks to life and health from nuclear power plants should be as low as reasonably achievable and should be comparable to or less than the risks of generating electricity by viable competing technologies." In the most recent drafts, the as low as reasonably achievable (ALARA) concept has been removed.

We believe that the ALARA concept should be retained. It should be applied for all future nuclear power plants. However, for existing nuclear power plants, the use of ALARA for improvement when the safety goals appear to have been met should be limited to special situations. The concept of as safe as is practical is used in British law with regard to the regulation of hazards. It has been used in one form or another in much U.S. legislation of the last decade concerning hazards other than those from nuclear power plants. We believe that the concept is sound and reflects society's general desires. Of course, care is required that the ALARA concept be applied intelligently and not be abused. However, its omission from the qualitative safety goal is an important omission and fails to recognize a general, societal trend to aspire to improve safety.

2. The quantitative design objectives in the most recent drafts appear to define an objective for risk of prompt fatality for an individual but not for the risk of cancer fatality for an individual. It may be that current risk calculations suggest that the risk of cancer is acceptably low if the objective for risk of a prompt fatality is met. However, that situation could conceivably change, and, in any event, the individual risk of fatal cancer due to nuclear power plant operation or accidents is an important consideration. We believe that a design objective should be specifically identified.
3. The definition of acceptable societal risk in the most recent drafts has the undesirable characteristic that larger societal risks are permitted for the nuclear power plant which has the larger surrounding population within a fifty mile radius. This provides no incentive for more remote siting nor does it give incentive to improve safety when more people are at risk. Furthermore, the existing wording would seem to permit a very high risk of cancer for those living near the plant to be averaged out with the low risk to very large numbers of people living 25 to 50 miles from the plant. We believe that prior to publication of any draft safety policy, changes should be made to correct these possible interpretations.
4. Regarding the proposed cost-benefit guideline, the ACRS has previously recommended that all accident effects, including loss and recovery of on-site and off-site resources, be included, and that at least during the evaluation period, cost-benefit estimates be made using this basis as well as that in the \$1000/man-rem guideline.

The current draft appears to use the cost-benefit guideline only as a test which possible backfitting proposals must meet. As noted above, we would apply the ALARA concept for the improvement of new designs. Furthermore, no threshold risk is defined above which remedy of the hazard would be relevant or required, independent of results obtained from a cost-benefit estimate with all its attendant uncertainties.

5. It would be useful to say considerably more on the point of excluding the fuel cycle, sabotage, and diversion risks than is said in the January 7, 1983 version of the "Policy Statement on Safety Goals for the Operation of Nuclear Power Plants."

In place of the flat and cryptic final sentence of the third paragraph of that policy statement, one might use an expanded statement along the following lines. After the sentence, "The Commission will ... risks of nuclear power plant operation," the text could read:

January 10, 1983

The risks from the nuclear fuel cycle are not included in the safety goal. These have been considered in their own right and determined to be quite small. They will continue to receive careful consideration -- particularly if the present situation regarding the reprocessing of spent fuel should change.

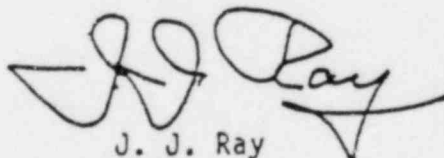
The possible effects of sabotage or diversion of nuclear material are also not presently included in the safety goal. At present there is no basis on which to provide a measure of risk on these matters. It is the Commission's intention that everything that is needed shall be done to keep such risks at their present, very low, level; and it is our expectation that efforts on this point will continue to be successful.

With these exceptions, it is our intent that the risks from all various initiating mechanisms be taken into account to the best of the capability of current evaluation techniques.

The ACRS will report at a later time its opinions on the draft NRC Staff evaluation plan, and may comment further on the proposed safety goal policy statement.

Dr. Forrest Remick did not participate in Committee consideration of this matter.

Sincerely,

A handwritten signature in black ink, appearing to read "J. J. Ray". The signature is stylized with large, sweeping loops and a long horizontal stroke at the end.

J. J. Ray  
Chairman

References:

1. Memoranda from J. E. Zerbe to NRC Commissioners, Subject: Revised Safety Goal Policy Statement, dated January 7, 1983, and December 16, 1982, with attachments
2. Memorandum from W. J. Dircks, EDO, NRC, for NRC Commissioners, Subject: Plan for Evaluating Proposed Safety Goals, dated January 7, 1983, with enclosure
3. Memorandum from N. J. Palladino for NRC Commissioners, Subject: Safety Goal Federal Register Notice, dated January 7, 1983, with enclosure
4. Memorandum from W. J. Dircks, EDO, NRC, to NRC Commissioners, Subject: Safety Goals, dated January 5, 1983, with enclosure and Draft Response to Inquiry on Provisional Safety Goals, dated January 6, 1983
5. Memorandum for NRC Commissioners from J. E. Zerbe, Subject: Proposed Federal Register Notice for Safety Goal Policy Statement, dated December 17, 1982, with attachment
6. Memorandum from W. J. Dircks, EDO, NRC, to NRC Commissioners, Subject: Action Plan for Implementing the Commission's Proposed Safety Goals, dated December 14, 1982, with enclosure
7. Memorandum from J. E. Zerbe to NRC Commissioners, Subject: NUREG-0880, Revision 1, dated November 15, 1982, with attachment