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June 5, 1980

S-2358

John Ahearne, Chairman  
Joseph Hendrie, Commissioner  
Victor Gilinsky, Commissioner  
Richard Kennedy, Commissioner  
Peter Bradford, Commissioner  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

RE: Rulemaking on Safety Goal

Gentlemen:

It is our understanding that the Senate Committee Report on NRC's FY-81 authorization bill directs NRC to hold rule-making hearings to establish a safety goal for the licensing and regulation of nuclear power plants. UCS concurs with the Committee that such a proceeding is long overdue.

In this connection, we would like to draw your attention to a letter and draft notice of intention to promulgate regulations which UCS originally sent you on November 1, 1977, shortly after the issuance of the report of the Risk Assessment Review Group (the "Lewis Report"). In the draft notice, copies of which are attached, we suggested six questions which should be addressed by rulemaking. Those are:

- 1) Is the level of safety provided by present NRC regulations sufficiently high to ensure the protection of the public health and safety?
- 2) Are there significant accident sequences, such as core meltdown, not presently considered in the licensing process?
- 3) Are there additional safety systems required which are not now incorporated in the design of nuclear plants?
- 4) Is the level of safety in operating reactors, particularly those located in densely-populated areas, sufficiently

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Commissioners

June 5, 1980

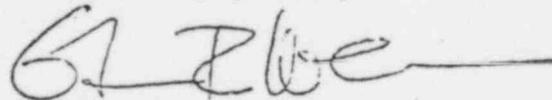
Page 2

high to ensure protection of the public health and safety? If not, what measures are required to ensure the public health and safety with respect to operating reactors?

- 5) In view of the presently existing data base and the state-of-the-art of risk assessment methodology, is it appropriate to classify certain possible accidents with potentially catastrophic consequences, such as core meltdown, as incredible for purposes of the licensing process?
- 6) If risk assessment is appropriately used to exclude the consideration in licensing of certain accidents, what is the proper measure of potential risk and potential consequences and which accidents should be classified as "incredible?"

The need to address precisely these questions has surely been fully confirmed by the TMI accident and its aftermath. They are the central questions which must be resolved in any proceeding to establish a safety goal. Therefore, we urge you to expeditiously notice the commencement of a rulemaking proceeding to address these issues in the context of establishing a safety goal for the licensing and regulation of facilities within NRC jurisdiction.

Very truly yours,



Ellyn R. Weiss

ERW/dmw

cc: Senator Gary Hart  
Leonard Bickwit, General Counsel

Enclosure

DRAFT NRC STATEMENT OF POLICY CONCERNING  
REACTOR SAFETY STUDY AND NOTICE OF  
INTENTION TO PROMULGATE REGULATIONS

In 1972 the Atomic Energy Commission initiated a major study to assess the safety of commercial nuclear power plants. This project, known as the Reactor Safety Study ("RSS"), was a response to the growing public controversy over nuclear safety and to doubts about whether the AEC was able to support scientifically its official claims about the risks of serious nuclear accidents. The project was funded by the AEC and directed by Dr. Norman C. Rasmussen of the Massachusetts Institute of Technology.

The final results of the Reactor Safety Study were issued in 1975 as WASH-1400, along with an Executive Summary that purported to highlight the findings and conclusions of the RSS. The general conclusion of RSS was the optimistic assessment that the risk of a public injury from reactor accidents was exceedingly small. The NRC widely disseminated both WASH-1400 and the Executive Summary to the general public and the scientific community; Chairpeople Ray, Anders and Rowden in turn all issued public statements claiming that WASH-1400 demonstrated the low risk associated with nuclear power and the success of the AEC/NRC safety program. WASH-1400 was given to Congress and the public as evidence of the success of the regulatory program and was used by the industry in numerous advertising campaigns.

Assessment by the scientific community of WASH-1400 was, of necessity, far longer in coming because of the sheer

volume and complexity of the document, as well as the obscurity of some of its analysis. However, detailed and thoughtful criticism of WASH-1400, including substantial analyses by a committee the American Physical Society and by the Union of Concerned Scientists, were published in 1975-1977. The nature and extent of the peer criticism was serious enough to cause the NRC in July, 1977 to establish a panel of scientists under the Chairmanship of H.W. Lewis to review WASH-1400 and its peer comments and to report their findings to the NRC. This panel was designated the Risk Assessment Review Group.

The Risk Assessment Review Group completed its work published as NUREG/CR-0400, in September, 1978. It concludes, inter alia, that, although the methodology of WASH-1400 may in certain limited instances be usefully employed, particularly as an indication of areas requiring research priority, the quantitative risk assessment provided in WASH-1400 is technically indefensible. This is due in many cases to an inadequate data base, in others to a failure to quantify common cause accidents, and finally because of some unjustifiable methodological and statistical techniques, among other reasons.

Moreover, the Risk Assessment Review Group found that the Executive Summary of WASH-1400, by far the most widely read part of the document, is seriously misleading. It understates the potential consequences of reactor accidents actually found in WASH-1400 and overstates the certainty of

the results. The Executive Summary has led to distortion and misuse of WASH-1400. Finally, the Risk Assessment Review Group recommends a number of steps. Among the most significant are that neither the absolute risk figures nor the consequence model from WASH-1400 be used uncritically in the regulatory process.

The Commission has reviewed the content of the Risk Assessment Review Group Report. In addition, we have considered the implications of the report for the manner in which the NRC regulates and licenses nuclear power facilities. NRC hereby endorses the basic finding of the Review Group Report that the RSS does not provide a valid scientific assessment of the safety of nuclear power reactors. WASH-1400 is defective in many significant ways. Many of the calculations are wrong and the absolute risk figures are not reliable. WASH-1400 does not support the conclusion that the risk to the public from nuclear accidents are extremely low as compared to other risks.

Because of the great publicity given to the WASH-1400 results by the AEC/NRC and by the nuclear industry, the Commission has a special responsibility to disseminate and explain the significance of the Risk Assessment Review Group Report. Accordingly, the Commission has decided to take the following steps:

- 1.) to withdraw WASH-1400 as an official NRC document, i.e., as a document whose accuracy receives official NRC support.

2.) to transmit the Report of the Risk Assessment Review Group and this policy statement to all persons and agencies who received copies of WASH-1400 and to all foreign governments and agencies which have made use of WASH-1400.\*

3.) to hold briefings for members of the Congress and the press to explain the Risk Assessment Review Group Report.

4.) to direct the NRC to make no use of absolute risk figures and consequence figures from WASH-1400 in the licensing and regulatory process. Any use of probabilities by the Staff must be independently supported and must be based on an adequate data base and an accurate statement of uncertainty.

The Commission, as noted above, has reviewed the broader policy implications of the Review Group's finding that the RSS accident probability assessments are invalid. The AEC, and then the NRC, explicitly and implicitly licensed reactors on the basis of claims about accident probability. They have used a kind of risk assessment to classify accident sequences as either "credible" or "incredible." Accidents for which the Staff judged the probability to be less than  $1 \times 10^{-6}$  have traditionally been classified as "Class 9" - the so-called

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\*The Commission will also circulate with each copy of the Review Group Report a letter dated October 18, 1978 by Daniel F. Ford of the Union of Concerned Scientists that corrects a significant error in the Review Group Report.

incredible event. Despite the potential catastrophic consequences of such events, they have been disregarded in the licensing and regulatory process. The implication of the Risk Assessment Review Group Report, that AEC/NRC accident probability claims which have formed the basis for licensing decisions may be invalid, has sobering implications for NRC policymaking.

Accordingly, the Commission hereby initiates rulemaking proceedings to address the following questions:

- 1.) Is the level of safety provided by present NRC regulations sufficiently high to ensure the protection of the public health and safety?
- 2.) Are there significant accident sequences, such as core meltdown, not presently considered in the licensing process?
- 3.) Are there additional safety systems required which are not now incorporated in the design of nuclear plants?
- 4.) Is the level of safety in operating reactors, particularly those located in densely-populated areas, sufficiently high to ensure the protection of the public health and safety? If not, what measures are required to ensure the public health and safety with respect to operating reactors?
- 5.) In view of the presently existing data base and the state-of-the-art in risk assessment methodology,

is it appropriate to classify certain possible accidents with potentially catastrophic consequences, such as core meltdown, as incredible for purposes of the licensing process?

6.) If risk assessment is appropriately used to exclude the consideration in licensing of certain accidents, what is the proper measure of potential risk and potential consequences and which accidents should be classified as "incredible?"

Pending the outcome of rulemaking proceedings on the subjects listed, the Commission must determine whether interim measures are required, especially with respect to assuring the protection of the public health and safety.

Among the options available are the following:

1.) to suspend the issuance of construction permits and operating licenses.

2.) to order construction halted on all plants which have not yet received operating licenses.

3.) to identify the operating reactors which must be shut down, derated or modified in order to ensure a sufficient level of public safety.

The Commission has decided to solicit public comment on interim options as well as the long-term rulemaking. We have also decided, as a prudent precaution which does not prejudice future Commission action, to direct the NRC Staff to develop a contingency plan for the orderly shutdown, derating and/or

modification of operating reactors. This plan should establish priorities considering the age, design and location of each plant, and if necessary, alternatives for meeting the power needs of the affected area.

Public comments addressed to the interim measures shall be received within 30 days of publication of this notice. Public comments on the long-term study and rule-making shall be received within 45 days of publication of this notice. Commenters are requested to specifically address the 6 questions listed above. Commenters are also requested to discuss the manner in which these proceedings should be conducted in order to fully involve the independent scientific community and the public in an effort to fully assess the risks associated with nuclear power plants.