JUL 3 1976

Mr. Lee V. Gossick
Executive Director for Operations
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Gossick:

With the completion of the Reactor Safety Study, which provides an initial assessment of the risk from nuclear power and the expected completion in 1977 of the National Academy of Sciences' study on the risks of the uranium fuel cycle, the risk contributed by the use of light-water reactors for the generation of electrical power will be quantitated, at least within a defined range of uncertainty. Although the safety of nuclear power is under continual development, there is a large group of LWR nuclear power plants now operating or expected to be operational before 1985, which constitute, with their support facilities, the apparent near-term primary cause of risk from nuclear power in the United States.

When the Environmental Protection Agency (EPA) began reviewing environmental impact statements on nuclear power plants, in particular the Oconee Nuclear Power Station, a series of meetings were held to discuss the content of environmental impact statements, the issues involved and the appropriate treatment of the issues in the environmental statements. These meetings began in December 1971 and were attended by representatives of the Council on Environmental Quality, in addition to staff from the Atomic Energy Commission (AEC) and EPA.

In these meetings, it was agreed by the EPA and NRC staff that certain aspects, including transportation of radioactive materials, consequences of accidents, and the rest of the fuel cycle were expected to be generally similar for the majority of light-water nuclear power plants. Thus, these issues could be treated most effectively on a generic basis. In addition, EPA urged that a generic assessment be made of the risk of accidents at nuclear power plants, and was assured by the AEC that it was moving toward such an assessment. It was further understood that eventually a generic determination of the acceptability of the risk would be made.

Consequently, environmental statements have treated these issues on a generic basis, with continual refinement as better information became available. EPA's review comments on these issues have also been primarily generic, although questions have been raised when site-specific conditions appeared to be outside the range of average conditions. In general, EPA has concluded that, pending completion of our review of the Reactor Safety Study, there was sufficient assurance that no undue risks would occur due to the individual licensing actions being taken.

From our recently completed review of the Reactor Safety Study, we have concluded that, within a defined range of uncertainty, the study has indeed provided a quantitative estimate of the risk from severe accidents at contemporary U.S. nuclear power plants.

Therefore, we believe that with a value of the risk at hand, it is time to proceed to the next logical step, i.e., to make a determination of a level of risk which will serve as a criterion of acceptability for nuclear power reactor safety. This, we believe, would be amenable to resolution via a generic environmental statement.

Determination of the acceptability of the risk is inherent in the function of licensing these facilities. This has been done, and we believe should continue to be done, on an individual plant basis; for example, as provided in the Addendum to the Final Environmental Statement for the Operation of the Diablo Canyon Nuclear Plant Units 1 and 2, dated May 1976, which states, "The risk of accidental radiation exposure has been addressed in depth in the Commission's Reactor Safety Study (WASH-1400, NUREG-75/014) and found to be acceptably low." While we have provided the NRC a separate letter on this individual plant licensing action, we believe that it is essential to make such a determination on a generic basis, prior to making statements on individual actions. In our opinion, it is difficult to justify such a determination at this time since the basis of the determination has not been fully examined and accepted.

We further note that there is at least one indication that the NRC has already begun to move toward establishment of a criterion of acceptable risk for nuclear power. This is the use of a required maximum probability of failure for the reactor protection systems in BWR's, in essence a determination of "safe enough" for this important reactor protection system.

This proposed generic evaluation of risk acceptability is not a question of the acceptability of the use of nuclear power, but a determination of whether the present generation of light-water reactors, which are already in place or expected to be in place in the near future, are safe enough or whether further requirements on safety are needed.

A generic environmental impact statement requires a cost-benefit analysis, which in this case, would most likely consider the cost of increased engineered safeguards, siting alternatives, and upgrading of emergency response capability. That is, once the level of acceptable risks has been determined, it should be possible to determine whether it is necessary to make reactor licensing requirements and siting practices more stringent to reduce the risks, and whether improvements in emergency preparedness planning and implementation are necessary.

We believe this is an appropriate time for a determination of acceptability and that such a determination should be made on a generic basis by input from a broad spectrum of our societal interests. Preparation of a generic impact statement would be an appropriate means of implementation and participation of various societal interests.

We will be pleased to discuss this matter with you at your convenience.

Sincerely yours,

/S/

W. D. Rowe, Ph.D.
Deputy Assistant Administrator
for Radiation Programs (AW-458)

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

NOV 18 1976

W. D. Rowe, Ph.D.
Deputy Assistant Administrator
for Radiation Programs
U. S. Environmental Protection Agency
Washington, D. C. 20460

Dear Dr. Rowe:

Your letter of July 2, 1976 suggests that it is timely to consider undertaking further studies of nuclear accident risks. We have been considering an effort along similar lines as you suggested. Your meeting with Mr. Rusche on September 7 was of considerable benefit to us in developing a better understanding of your views.

The assessments of accident risks currently presented in Environmental Impact Statements on individual cases are intended to convey the results of our analysis of an applicant's efforts to comply with NRC's safety regulations and practices. These regulations and practices have, from the outset, been developed with an aim towards assuring that no undue risk to the health and safety of the public is associated with any LWR licensed by the NRC. The staff's accident assessments in impact statements have reflected this. These assessments are not intended as a substitute for other staff reviews of the acceptability of the application from a safety standpoint that we perform pursuant to the Atomic Energy Act.

The Reactor Safety Study indicates that the approach to safety as set forth in the Commission's regulations has been successful and that the safety and environmental risks from accidents are lower than the risks from most other natural and man-caused events. Our continuing program of confirmatory research will permit progressively greater exactitude in estimating nuclear risks.

One area which we believe is relevant and was not addressed in your letter is the risks associated with alternative sources of energy generation. As you know, our environmental assessments include economic comparison of alternate means of electric generation. Optimally, comparisons of alternatives should be made with the benefit of full knowledge of all impacts associated with each available option. Similarly, risk assessments of one concept should be viewed in the light of other risks. As I am sure you are aware, the ability to quantify risks is dependent on the availability of applicable data, and the definition of acceptable levels of risks on a quantitative basis is a new field that will require significant study.

As a first step, we believe that a consolidation of the results of the last few years of environmental assessments should be undertaken and this base used to help identify those factors, or range of plant and site features, which are of significance from an overall risk standpoint. We believe it is appropriate to approach this subject on a step-by-step basis with the most detailed planning devoted to near-term activities and more general plans developed for later steps.

As we develop our plans, we would be pleased to meet with you to further discuss your views on this subject, and to have the benefit of your comments before we finalize our program. We appreciate your cooperation and suggestions and look forward to a continued dialogue on this subject.

Sincerely,

Lee V. Gossick
Executive Director for Operations

20 DEC 1976

Mr. Lee V. Gossick
Executive Director for Operations
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Gossick:

I have received your letter of November 10, 1976, concerning the assessment of the risks associated with light-water-cooled nuclear power plants. Unfortunately, your response did not directly address the main point of my letter -- the need for an assessment of the level of acceptable risks of nuclear power reactors. We believe that it is necessary to develop a plan to treat this issue, resulting in a generic environmental impact statement, or a rulemaking proceeding. Such an effort will undoubtedly take several years involving several steps as outlined by Mr. Rusche in our recent meeting. Identification of all risks in the fuel cycle as specified by Mr. Rusche is an important first step. However, neither it nor the Reactor Safety Study can by themselves address the problem of acceptable levels of risk.

In any event, we believe the determination of levels of acceptable risk must include early and complete participation by a broad cross-section of our societal interests. We recognize that this is a complex and difficult task, but we are convinced that it is essential that such an opportunity be provided for the ultimate acceptance of nuclear power as an essential component for meeting our energy needs. For our part, we will be glad to provide assistance in planning for a public evaluation of acceptable levels of risk and in carrying out the effort.

We believe that the Reactor Safety Study has provided a reasonable estimate, within a defined range of uncertainty, of the risks of large accidents in LWRs. My staff has been working with Saul Levine's staff to resolve some of the differences of opinion we have had concerning the results of the Reactor Safety Study. We believe that when we complete our efforts on the study, we will be in much closer agreement regarding the possible error band than we previously indicated in our comments on the final report (June 11, 1976).

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As we previously indicated in our comments on the Reactor Safety Study (June 11, 1976), we believe, as the study indicated, that it is important to examine plant-specific design and site differences to quantify the applicability of the results in the Reactor Safety Study to other nuclear plants. My staff has undertaken a preliminary analysis of the accident analysis data prepared for individual LWR environmental statements. We have found that apparently the primary factor which impacts on the level of the consequences given in the environmental statements is population (density and distribution). Other significant variables, of course, are plant size and meteorology, mainly as related to the minimum site boundary distance. The NRC has utilized typical parameters in making the realistic accident analyses which do not reflect differences in plant-engineered safety features nor site-specific meteorology. Thus, the risk results in environmental statements cannot provide extensive new information without further site-specific analyses. In the past, we have considered this accident analysis data in anticipation of a generic treatment. We are now concerned, based on these newer analyses, that our present reliance on a generic treatment of design basis accidents in environmental statements may no longer be applicable. As we proceed to review this matter further, including more detailed analyses of the results of our study, it would be appropriate for the NRC to develop a plan for incorporating, in environmental statements, consideration of site-and-plant specific parameters in assessing the risks at individual nuclear facilities.

In your letter, you addressed the need for a quantification of the risks associated with alternative sources of generating electricity. We agree that comparison of risks from nuclear plants to the various alternatives is an important task. EPA has a research program which will contribute to the quantification of risks from the alternatives to nuclear power.

In summary, I understood from my meeting with Mr. Rusche on September 7 that a plan would be developed with the goal of achieving quantification of acceptable levels of risk for nuclear power reactors. Once these levels are determined it should be possible to determine if a need for risk reduction exists and, if needed, means of risk reduction on a cost-effective basis. The time is proper to undertake this task. Therefore, we would like to know your plans for this effort. We will be glad to work with you to develop such a plan.

Sincerely yours,

Original signed by
W. D. Rowe

W. D. Rowe, Ph.D.
Deputy Assistant Administrator
for Radiation Programs (AW-458)