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

OFFICE OF THE
COMMISSIONER

September 6, 1984

MEMORANDUM FOR: Jesse C. Ebersole
Chairman, ACRS

FROM: James K. Asselstine

SUBJECT: SEVERE ACCIDENT POLICY STATEMENT

On July 10, 1984, I wrote to you requesting the Committee's comments on several questions related to the staff's proposed Severe Accident Policy Statement. Following my memorandum, you and several other members of the Committee met with me to discuss my questions regarding the policy statement. In light of our discussion, we agreed that it would be useful for me to refine and clarify my questions to the Committee. Accordingly, I would appreciate the Committee's thoughts on the following:

1. It seems to me that it would be helpful to the Commission, in considering the adequacy and completeness of the Severe Accident Policy Statement, to have at least a general understanding of the likelihood of the occurrence of a severe accident in the foreseeable future, assuming the continuation of our present regulatory approach and program. I would therefore appreciate the Committee's views on the likelihood, given our present understanding of current LWR technology, the present capability, qualifications and attitudes of the utilities operating nuclear powerplants and our present regulatory program and approach, that an accident involving large-scale degradation or melting of the reactor core will occur between now and the year 2000. I should emphasize that I am not asking for some precise, numerical probabilistic judgment, which I think we agree is not possible. Rather, I am interested in a more qualitative judgment, such as whether such an accident is highly unlikely, somewhat unlikely, not unlikely, or highly likely, given our present knowledge of the factors listed above.

2. It seems to me that the occurrence of a severe accident (i.e., an accident involving large-scale degradation or melting of the reactor core) within the next 16 years would have very serious adverse consequences on public confidence both in our regulatory program and in the safety of the plants, even if the actual immediate health effects from the accident were limited. Would the Committee agree, and is this a factor that the Commission should consider in its evaluation of the

proposed Severe Accident Policy Statement? For example, would it be useful, in light of your answer to question one, to include in the policy statement a statement to the effect that it is a fundamental objective of the Commission's severe accident policy to take all reasonable steps to minimize the occurrence of a severe accident involving large-scale degradation or melting of the reactor core and to mitigate the consequences of such an accident should one occur?

3. Does the Committee believe that the occurrence of a severe accident is more likely at some plants than at others? If so, what are the significant contributors at the plants where a severe accident is more likely? In particular, how significant a factor is the licensee's management and operating capabilities and attitudes, and is a severe accident more likely at a plant with weak management and operating capabilities and attitudes?

4. If a severe accident is not unlikely during the next 16 years, what further steps could be taken, beyond those described in the proposed Policy Statement to minimize the occurrence of such an accident or mitigate its consequences? I note, for example, that the Committee's July 18, 1984, letter to the Commission seems to recommend a systematic examination of each plant. Should the Commission require a plant-specific PRA for each plant? What other measures might be useful? Would focusing attention on weak performers in the areas of management and operating capabilities and attitudes be helpful?

5. Cost-benefit analysis would play a key role under the proposed policy statement in considering further measures to address severe accidents. Does the policy statement over-emphasize cost-benefit analyses and PRA as a decision-making tool? Given the substantial uncertainties in calculating risks, costs and benefits in this areas, should the policy statement emphasize the use of more qualitative engineering judgment?

6. The proposed policy statement includes some statements that could be read to mean that major hardware changes will not be needed to address severe accidents for existing plants. Would it be more accurate to say that we cannot now identify one or more specific changes which are necessary and appropriate on a generic basis, but that such changes are possible depending upon the outcome of our severe accident research program and cannot be ruled out at this time?

7. How should the resolution of unresolved safety issue A-45, decay heat removal, fit in with the Severe Accident Policy Statement? For example, should the program to resolve A-45 be a broad-based program that examines in detail alternatives such as a new, independent decay heat removal train, or should

it be a limited program aimed only at procedural changes to improve the reliability of existing decay heat removal systems in the plants? Should this be discussed in the policy statement?

I greatly appreciate the Committee taking the time to consider these questions. I also want to express my appreciation to you and the other members of the Committee who met with me to discuss this subject. I found that meeting to be of exceptional value to me, and I hope that we can have similar meetings in the future on other subjects of mutual interest. This type of dialogue can only improve the quality of the Commission's decisions.

cc: Chairman Palladino
Commissioner Roberts
Commissioner Bernthal
Commissioner Zech
SECY
EDO