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NUCLEAR POWER SYSTEMS DIVISION
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A. PHILIP BRAY
VICE PRESIDENT AND GENERAL MANAGER

March 7, 1980

Honorable John F. Ahearne
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Dr. Ahearne:

SUBJECT: BWR MARK I & II CONTAINMENT INERTING

I am writing to raise a serious objection by the General Electric Company to the proposed order for inerting Boiling Water Reactor (BWR) Mark I and II containments. As it now stands, inerting has been recommended by the NRC staff in advance of the accident prevention and mitigation rulemaking process.

We believe there is no basis for inerting Mark I and Mark II when the inherent design of the BWR and the arguments against inerting are considered. Moreover, such a ruling would be inconsistent with the Lessons Learned Task Force Final Report recommendation to conduct rulemaking to address hydrogen control resulting from core damage. It is General Electric's belief that inerting is counterproductive to safety of the Mark I and II containments as we explain herein.

Recognizing that the NRC must take action to reduce and remove the uncertainties related to the TMI accident, General Electric and the BWR Owners Group have been working closely with the USNRC since the accident to accomplish that goal. However, the NRC staff has apparently decided to recommend inerting before the accident studies are begun and the merits of inerting, in terms of risk reduction, quantified. We believe the proposed order is inappropriate in light of the following arguments:

1. The NRC staff proposal for containment inerting fails to recognize the BWR's proven inherent accident prevention features. The capabilities for the direct and redundant water level measurement and the multiplicity of Emergency Core Cooling Systems - including diverse core spray capability, a variety of cooling water sources and the ability to automatically depressurize - are expressly provided in the GE BWR to prevent the occurrence of a core uncover event. In addition to these accident prevention systems the BWR

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possesses a unique capability to operate under conditions of natural circulation in cases of extreme degradation.

2. The sequence of events at TMI including operator action, led to a cessation of core flow, core uncover and the formation of a noncondensable hydrogen bubble. For the BWR's there is no known sequence of events that can cause a cessation of core flow or formation of a hydrogen bubble when water inventory is available. Core flow is greatest in the jet-pump type of BWR, but even in the BWR 2, core flow is more than adequate to prevent fuel damage. This was demonstrated during the Oyster Creek transient of May 2, 1979. Thus the probability of core damage of the magnitude of TMI is highly unlikely for the BWR.
3. Inerting of Mark I and II containments fails to recognize the grave safety hazards to plant personnel. One death in a foreign BWR containment occurred in 1970 when it was thought that the previously inerted containment had been purged. In addition, there have been instances of plant personnel losing consciousness during containment entry for inspection into an inerted atmosphere. In testimony to the Atomic Safety and Licensing Appeal Board in 1974, witnesses for the Vermont Yankee Nuclear Power Corporation testified that the hazards to plant personnel resulting from entries into an inerted containment with the assistance of self-contained breathing apparatus are so great that such entries would not be made except in the most extraordinary circumstances.

The ASLAB Memorandum and Order of July 11, 1974 indicated that the Board members were also very concerned about the reduced inspection capability resulting from operation with an inerted containment. Instances were cited by Vermont Yankee witnesses in which mechanical defects were discovered by virtue of routine inspections. These inspections would not have taken place had the containment been inerted. In at least one of these cases, plant personnel were able to discover a defect and call for its repair. Had it gone undiscovered, it might have led to a situation of concern.

4. The costs to the utilities to provide for containment inerting are not insignificant. The resources to put equipment in place in BWR Mark II's have been estimated to be as high as two million dollars per plant. The costs to maintain nitrogen purity for an inerting system are estimated to be approximately \$20,000 per month. In addition, the lost power production time associated with the inerting and purging process has been estimated by utilities to cost as much as \$200,000 - \$500,000 in replacement power per year.

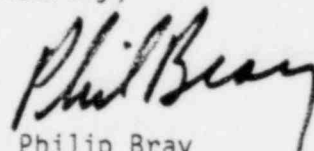
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5. General Electric perceives the NRC proposed order to inert BWR Mark I and II containments to be an arbitrary decision. We believe that the proper way to assess the need for BWR modifications is for the NRC to first establish the criteria. Then industry analyses could be performed which consider this criteria, invoking both the capability of accident prevention in concert with mitigation. Such evaluations when complete should form the bases for requiring plant changes such as inerting, if needed. The proposed inerting action discriminates against the BWR.

In summary, General Electric believes that inerting BWR Mark I and Mark II containments is unnecessary, and is counterproductive to BWR safety. Such a proposed ruling appears discriminatory in singling out the BWR particularly in neglecting the BWR's proven inherent accident prevention and mitigation features. In essence it appears to be a simplistic reaction to TMI without evaluation of the safety implications.

I urge that these comments receive consideration by the NRC. General Electric stands ready to assist the NRC in properly investigating the total safety implication of potential hydrogen generation.

Sincerely,



A. Philip Bray

cc: Commissioner Bradford
Commissioner Gilinsky
Commissioner Hendrie
Commissioner Kennedy
M. W. Carbon
H. R. Denton
R. J. Mattson