



NUCLEAR ENERGY INSTITUTE

4405

**Joe F. Colvin**  
PRESIDENT AND  
CHIEF EXECUTIVE OFFICER

August 24, 1999

The Honorable Greta J. Dicus  
Chairman  
U.S. Nuclear Regulatory Commission  
Mail Stop O-16 C1  
Washington, DC 20555-0001

Dear Chairman Dicus:

In performing a probabilistic risk analysis (PRA) of decommissioning facilities, the NRC staff concludes that the public health risk for a decommissioned facility is equivalent to that of an operating power reactor. This illogical conclusion was reached by treating fundamental aspects of the quantitative analysis in a manner that is not consistent with the Commission's PRA policy statement or the approach used for operating plant PRAs. These study results are summarized in SECY 99-168, Improving Decommissioning Regulations for Nuclear Power Plants.

The study concludes that a zirconium fire with offsite health consequences can occur when no action is taken to recover from a loss of pool water inventory. The conclusions of the draft study are in conflict with previous NRC studies of this issue, and result from the use of worst case assumptions and improper coupling of risk analysis with deterministic methods.

A fundamental tenet of PRA (as articulated in the Commission's policy statement) is the use of realistic, best estimate values for treatment of data, sequence analyses, human performance, and success criteria. We performed a detailed review of the assumptions used in the draft NRC study and compared them with similar assumptions used in operating plant PRAs. The draft study generally assumes worst case, or bounding assumptions, that are compounded through the quantitative process in such a manner to overstate by two orders of magnitude the likelihood of conditions leading to the zirconium fire.

The study couples this overstated probability value with a conservative thermal hydraulic analysis, including adiabatic heat up conditions, large conservatisms in the zirconium ignition point, and failure to take into account the time to boil off the coolant from the time of initial fuel uncover until ignition of the zirconium. The end state of the NRC study does not equate to a public health impact, but rather to an intermediate point in the development of the scenario. This approach is again



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inconsistent with operating plant PRAs, which use realistic thermal hydraulic calculations and calculate end states (e.g., large release frequency) that can be related to public health effects and the NRC's safety goal policy statement.

NRC staff is proposing to use the study to justify regulatory requirements (such as emergency planning) for many years after the facility is permanently shut down. The continuation of these regulations is not justified on the basis of the draft NRC study.

The presentation of staff conclusions to the Commission needs to be given careful and thoughtful consideration. Although the results were acknowledged to be preliminary, the use of flawed analysis as a basis for any decision making is detrimental to the fidelity of the regulatory process. The success of risk-informed regulation is dependent on correct and consistent application of the Commission's policies.

We appreciate your consideration of this important matter, and would be pleased to meet with the Commission, or your technical assistants, to provide more detailed information.

Sincerely,



Joe F. Colvin

c: The Honorable Nils J. Diaz, Commissioner, NRC  
The Honorable Edward McGaffigan Jr., Commissioner, NRC  
The Honorable Jeffrey S. Merrifield, Commissioner, NRC  
Dr. William D. Travers, Executive Director for Operations, NRC