

June 4, 1996

Mr. James M. Taylor
Executive Director for Operations
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dear Mr. Taylor:

SUBJECT: PROPOSED RULE ON SHUTDOWN OPERATIONS

During the 431st meeting of the Advisory Committee on Reactor Safeguards, May 23-25, 1996, we held discussions with representatives of the NRC staff and the Nuclear Energy Institute (NEI), concerning the subject proposed rule and the probabilistic risk assessment (PRA) studies that were performed for the Surry and the Grand Gulf Nuclear Power plants. Our Subcommittee on Plant Operations met with the staff, NEI, and a utility representative on May 21, 1996, to discuss these matters. We also had the benefit of the documents referenced. We previously commented on the staff effort to resolve the shutdown operations issue in our letters dated August 13, 1991, April 9, 1992, September 15, 1992, and May 13, 1994.

According to the staff, the proposed rule will contain performance-based elements. Since the supporting regulatory analysis and regulatory guide are still being developed, we discussed only the proposed rule during our meeting. The staff has held several public meetings with NEI to obtain industry input on the formulation of this rule.

We made a number of comments on the risk basis for the rule. The staff agreed to consider our comments as it finalizes the draft rule, which it plans to publish for public comment in September 1996. We plan to provide comments on the proposed final rule after the staff has reconciled the public comments.

The concern for risk associated with shutdown operations has arisen from incidents that have occurred. Our quantitative understanding of the risk posed by plants in low-power or shutdown modes of operation is limited. Risk assessments for shutdown operations were performed for Surry (a three-loop PWR with loop isolation valves and a sub-atmospheric pressure containment) and Grand Gulf (a BWR-6 with a Mark III containment). Neither of these plants is a particularly good surrogate for the entire population of PWRs and BWRs.

The studies of shutdown risk consisted of two phases. The first phase was a deliberately conservative scoping analysis. The second phase focused on a single, high-risk plant operational state among

the many that exist during shutdown operation. Such an approach could lead to an incorrect assessment of risk (a historical analogue is the selection of the large-break, loss-of-coolant accident as a bounding event) or to the adoption of operating practices that might increase risk.

The available evidence does suggest that shutdown operations can make important contributions to the overall risk to the public posed by nuclear power plants. On the eve of our entry into an era of risk-informed rulemaking, there are no complete, reliable assessments of risk during shutdown operations even for a few representative plants. Certainly, there is nothing commensurate with the NUREG-1150 study of risk during full-power operation.

The staff effort toward an interim solution by promulgating this proposed rule is based on engineering judgment and will probably lessen risk. A risk-informed understanding will require a quantitative evaluation of risk during low-power and shutdown operations. We therefore recommend that priority attention be given to performing Level 3 PRAs for shutdown operations at the NUREG-1150 plants with consideration of spent fuel pool risk and uncertainty assessments.

Sincerely,

/s/

T. S. Kress
Chairman

References:

1. Memorandum dated April 5, 1996, from Robert C. Jones, Office of Nuclear Reactor Regulation, to John T. Larkins, ACRS, Subject: Development of ¹50.67, "Shutdown Operation of Nuclear Power Plants"
2. U. S. Nuclear Regulatory Commission, Prepared by Brookhaven National Laboratory, NUREG/CR-6144, "Evaluation of Potential Severe Accidents During Low Power and Shutdown Operations at Surry, Unit 1," Summary of Results, October 1995
3. U. S. Nuclear Regulatory Commission, Prepared by Sandia National Laboratories, NUREG/CR-6143, "Evaluation of Potential Severe Accidents During Low Power and Shutdown Operations at Grand Gulf, Unit 1," Summary of Results, July 1995
4. Nuclear Management and Resources Council, Inc., NUMARC 91-06, "Guidelines for Industry Actions to Assess Shutdown Management," December 1991

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