UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D. C. 20555

November 13, 1997

Mr. L. Joseph Callan
Executive Director for Operations
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dear Mr. Callan:

SUBJECT: PROPOSED FINAL GENERIC LETTER, "LOSS OF REACTOR COOLANT INVENTORY AND ASSOCIATED POTENTIAL FOR LOSS OF EMERGENCY MITIGATION FUNCTIONS WHILE IN A SHUTDOWN CONDITION"

During the 446th meeting of the Advisory Committee on Reactor Safeguards, November 6-7, 1997, we reviewed the subject Generic Letter. During this review, we had the benefit of discussions with representatives of the NRC staff and the Nuclear Energy Institute. We also had the benefit of the documents referenced. During our 439th meeting, March 6-8, 1997, we decided to review this Generic Letter after the NRC staff reconciled the public comments.

The subject Generic Letter addresses an event that occurred at the Wolf Creek Generating Station, Unit 1, on September 17, 1994. We previously heard an information briefing on this event during our 419th meeting in March 1995. Wolf Creek was in a hot shutdown mode at the time of the event, and was re-borating one train of the residual heat removal (RHR) system. Concurrently, in the other RHR train, maintenance was being performed on a valve that isolates this system from the refueling water storage tank (RWST). This activity required that the valve be opened, which established a drain down path from the reactor coolant system (RCS) to the RWST that lowered the reactor vessel water level to the top of the hot leg. If this condition had been left uncorrected, the core would have been uncovered in about one hour by continued boiloff and venting of steam through an open pathway that bypassed containment. In addition, hot water from the RCS entered a pathway into a common header from which the emergency core cooling system (ECCS) pumps take suction from the RWST, which could cause steam binding of the ECCS pumps. The event had the potential to initiate an accident sequence that would include the loss of ECCS and RHR capability with bypass of containment. The staff characterized this event as the most risk-significant precursor of 1994. The conditional core damage probability was estimated at

3E-3. The staff also noted that there had been 19 previous operating events in which RCS water was inadvertently transferred to the RWST.

Results of the scoping studies performed for the staff indicate that core damage events during hot shutdown do not constitute a significant fraction of risks posed by shutdown and low-power operations. The experiential data provided by this event and by other events identified in a study performed by the NRC Office for Analysis and Evaluation of Operational Data reveal a greater probability of risk-significant events during hot shutdown than indicated by the scoping studies. We recommend that the staff reassess its understanding of risk during low-power and shutdown operations.

We believe that the Generic Letter is appropriate and should be issued promptly. Three years is too long for issuance of a Generic Letter on an event of this significance. The staff should determine the reasons for such a delay and reassess the procedures for developing and issuing generic letters.

Sincerely,

R. L. Seale

R. L. Seale
Chairman

References:

1. Memorandum dated October 21, 1997, from Tim Collins, NRR, to John T. Larkins, ACRS, transmitting: (1) Revised draft Wolf Creek Generic Letter and comparative text version identifying changes made to version issued for public comments; (2) Public comment letters received from publishing draft Generic Letter in the Federal Register; (3) Statement of Public Comment Resolution and NRC Staff Response to public comments.
2. U.S. Nuclear Regulatory Commission, NUREG/CR-4674, Volume 21, "Precursors to Potential Severe Core Damage Accidents: 1994, A Status Report," Oak Ridge National Laboratory, December 1995.
3. U. S. Nuclear Regulatory Commission, NUREG/CR-6144, Volume 1, "Evaluation of Potential Severe Accidents During Low Power and Shutdown Operations at Surry, Unit 1," Summary of Results, Brookhaven National Laboratory, October 1995.

4. U. S. Nuclear Regulatory Commission, NUREG/CR-6143, Volume 1, "Evaluation of Potential Severe Accidents During Low Power and Shutdown Operations at Grand Gulf, Unit 1," Summary of Results, Sandia National Laboratories, July 1995.