D890614

The Honorable Lando W. Zech, Jr.
Chairman
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Chairman Zech:

SUBJECT: PROPOSED GENERIC LETTER REGARDING SERVICE WATER SYSTEM PROBLEMS AFFECTING SAFETY-RELATED EQUIPMENT

During the 350th meeting of the Advisory Committee on Reactor Safeguards, June 8-10, 1989, we discussed the proposed generic letter regarding Service Water System Problems Affecting Safety-Related Equipment. Our Subcommittee on Auxiliary and Secondary Systems met with representatives of the NRC staff and the industry on May 24, 1989 to discuss this matter. We also had the benefit of the documents referenced.

Nuclear power plant operating experience and studies have led the NRC staff to question whether service water systems generally comply with 10 CFR Part 50, Appendix A, General Design Criteria 44, 45, and 46, and other applicable criteria. Consequently, the staff is proposing to issue the subject generic letter to require that licensees and applicants perform five specific actions to assure that their safety-related service water systems are and continue to be in compliance with the applicable criteria and to ensure system functional capability.

The actions specified in the proposed generic letter are: (1) implement an appropriate program to control biofouling in open-cycle service water systems, (2) verify heat transfer capability for all safety-related heat exchangers, (3) implement a routine inspection and maintenance program for all open-cycle service water system piping and components, (4) confirm functional capability in accordance with the licensing design basis, and (5) confirm the adequacy of the maintenance practices, operating and emergency procedures, and training.

Although we are in general agreement with the need to issue the proposed letter, we do have the following comments concerning its scope and content.

- The proposed generic letter defines a service water system as an open-cycle or closed-cycle cooling water system that transfers heat from safety-related structures, systems, or components to an ultimate heat sink. Operating experience and studies cited by the staff indicate clearly that open-cycle systems may become degraded by biofouling agents, corrosion products, chemicals, mud, silt, or debris. The staff did not present sufficient evidence to substantiate a belief that closed-cycle systems that use clean chemically treated water are likely to experience safety-significant degradation as a result of water conditions. Absent convincing technical evidence and because of the high cost and increased occupational radiation exposure involved, we do not believe that the blanket inclusion of closed-cycle systems in the generic letter is justified at this time.

- Although the scope of the proposed letter should be limited to systems that use raw cooling water or treated water which is exposed to the environment (e.g., in cooling ponds or basins), we believe that if any component in these systems, such as a heat exchanger, is found to be degraded on the raw water side and heat transfer cannot be restored sufficiently, then the clean water side of the component should be inspected.

- Although not included in the proposed letter, the staff discussed using the absence of an adequate water chemistry control program over any part of the operating history of a closed-cycle system as a basis for including that system within the scope of the letter. We do not agree that this would be a sufficient basis.

- The proposed letter requires the verification of heat transfer capability for all safety-related heat exchangers cooled by service water. The letter should make clear that a heat transfer test, involving detailed flow and temperature measurements, is not the only means of determining the functional adequacy of such heat exchangers. Other methods to determine and ensure adequacy may be sufficient and less resource intensive.

- The proposed letter requires that each licensee confirm that its service water systems will accomplish their intended functions in accordance with the current licensing basis. This could be interpreted to mean backfitting to current regulatory requirements. The staff has stated that it means to use the original licensing basis for the plant in question. We agree, and this should be clarified in the letter.

We recommend that the proposed generic letter not be issued until these comments have been resolved.

Sincerely,

Forrest J. Remick
Chairman

References:

1. Memorandum dated May 4, 1989 from James H. Sniezek, Office of Nuclear Reactor Regulation, NRC, to Edward L. Jordan, Chairman, Committee to Review Generic Requirements, NRC, transmitting the Proposed Generic Letter Regarding Service Water System Problems Affecting Safety-Related Equipment (Internal ACRS Use Only)
2. U.S. Nuclear Regulatory Commission, NUREG-1275, Volume 3, "Operating Experience Feedback Report - Service Water System Failures and Degradations," November 1988
3. U.S. Nuclear Regulatory Commission, NUREG/CR-5234, "Value/Impact Analysis for Generic Issue 51: Improving the Reliability of Open-Cycle

Service-Water Systems," February 1989
4. U.S. Nuclear Regulatory Commission, NUREG/CR-5210, "Technical Findings Document for Generic Issue 51: Improving the Reliability of Open-Cycle Service-Water Systems," August 1988
5. Letter dated February 27, 1989 from William H. Rasin, NUMARC, to Edward L. Jordan, Chairman, Committee to Review Generic Requirements, NRC, regarding NRC generic letter on service water system performance
6. Letter dated June 8, 1989 from William H. Rasin, NUMARC, to Thomas E. Murley, Office of Nuclear Reactor Regulation, NRC, regarding NRC generic letter on service water system performance
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