September 6, 2005

Dr. John T. Larkins, Executive Director
Advisory Committee on Reactor Safeguards
U.S. Nuclear Regulatory Commission, MS-T-2E26
Washington, D.C. 20555

SUBJECT: PROPOSED REVISION TO REGULATORY GUIDE 1.82 REVISION 3, "WATER SOURCES FOR LONG-TERM RECIRCULATION COOLING FOLLOWING A LOSS-OF-COOLANT ACCIDENT"

Dear Dr. Larkins:

The staff is proposing to revise Regulatory Guide (RG) 1.82 Revision 3, "Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant Accident (LOCA)." RG 1.82 was first issued in June 1974 and provided guidance on the design of pressurized water reactor sumps, which serve as a water source during the recirculation phase of a postulated design basis LOCA. Revision 1 was issued in November 1985, and contained guidance resulting from the resolution of Unresolved Safety Issue A-43, "Containment Emergency Sump Performance." Revision 2 was issued in May 1996 to include guidance resulting from the resolution of the issue of debris blockage of boiling water reactor (BWR) emergency core cooling system (ECCS) suction strainers. The guidance of Revision 2 was part of the guidance used by licensees to satisfy the recommendations of U.S. Nuclear Regulatory Commission (NRC) Bulletin 96-03, "Potential Plugging of Emergency Core Cooling Suction Strainers by Debris in Boiling Water Reactors." Revision 3 was issued in November 2003 to include guidance on the effects of debris on pressurized-water reactor (PWR) sump screens that emerged from the work previously done to resolve these issues on BWRs.

Revision 3 also incorporated guidance on the net positive suction head (NPSH) of the ECCS and containment heat removal pumps. The guidance had been previously used by the staff in reviewing licensee submittals in response to NRC Generic Letter 97-04, "Assurance of Sufficient Net Positive Suction Head for Emergency Core Cooling and Containment Heat Removal System Pumps," but had not been previously published except as relevant in individual safety evaluation reports. The guidance of Revision 3 was not consistent with the guidance of Regulatory Guide 1.1, "Net Positive Suction Head for Emergency Core Cooling and Containment Heat Removal System Pumps," dated November 1970, nor was it consistent with Standard Review Plan (SRP) Section 6.2.2, "Containment Heat Removal Systems," which referenced RG 1.1. In particular, while RG 1.82 Revision 3 provided guidance on crediting containment accident pressure in calculating available NPSH, RG 1.1 states that no such credit should be used.

The purpose of the proposed revision to RG 1.82 Revision 3 is to clarify the guidance on crediting containment accident pressure in calculating the available net positive suction head. In addition, more technical information has been included on this subject for both BWRs and

PWRs. RG 1.1 and SRP Section 6.2.2 have also been made consistent with the proposed revision to RG 1.82. These documents are attached for your review.

The topic of crediting containment accident pressure in determining available NPSH was discussed with the Advisory Committee on Reactor Safeguards (ACRS) Plant Operations Subcommittee on December 2, 1997. An ACRS letter to then-Chairman Shirley Ann Jackson approved crediting containment accident pressure but recommended that the subject be examined from a broader perspective than that presented to the ACRS.

As part of our revision of RG 1.82 Revision 3, we have reexamined the issue of crediting containment accident pressure in determining available NPSH. On July 19, 2005, members of my staff discussed these proposed changes with the ACRS Thermal Hydraulics Phenomena Subcommittee. We are transmitting the attached documents to you in advance of our meeting with the full ACRS on September 8, 2005. The proposed revision to RG 1.82 Revision 3 remains unchanged from the version presented to the Thermal Hydraulics Phenomena Subcommittee. RG 1.1 is also unchanged. We have revised SRP Section 6.2.2 by eliminating the redline and strikeout so that a less confusing document results. The changes made to SRP 6.2.2 since the briefing to the Thermal Hydraulics Phenomena Subcommittee include: (1) eliminating names of other review branches since these may change in the near future; (2) deleting the reference to NUREG 0897 since this NUREG contains guidance dating to USI A-43, some of which is no longer applicable (more recent guidance is given in RG 1.82, Revision 4); (3) deleting the recommendation to increase the screen area by a factor of 3 for new designs (under Title 10 of the *Code of Federal Regulations* Part 52) since more technically defensible guidance is now included in RG 1.82, Revision 4 for both PWRs and BWRs.

We look forward to meeting with the ACRS on September 8, 2005.

Sincerely,

/RA/

James E. Lyons, Director
Division of Systems Safety and Analysis
Office of Nuclear Reactor Regulation

Enclosures: As stated

PWRs. RG 1.1 and SRP Section 6.2.2 have also been made consistent with the proposed revision to RG 1.82 and they are also included for review. These documents are attached for your review.

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