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NS-TMA-2290

Mr. Richard P. Snaider  
Generic Issues Branch  
Nuclear Regulatory Commission  
Washington, D. C. 20555

Dear Mr. Snaider:

Subject: Comments on NUREG-0577

Westinghouse has reviewed NUREG-0577, "Potential for Low Fracture Toughness and Lamellar Tearing on PWR Steam Generator and Reactor Coolant Pump Supports" dated October 1979, and the related letters of May 19, 1980 and May 20, 1980 from Mr. D. G. Eisenhut, and we offer the following comments.

1. NUREG-0577 should not be applied to any plant having supports designed to the ASME Code Section III Subsection NF, including NF-2300. Subsection NF assures that the supports have adequate fracture toughness characteristics. Any additional investigation or evaluation of fracture toughness is redundant and unnecessary.
2. Part I.A. in the enclosure to the May 19 and 20 letters requires that the materials must meet CVN or NDTT requirements for thicknesses  $\leq 2.5$  inches, but provides only NDTT criteria for thicknesses  $> 2.5$  inches. Westinghouse requires that the material meet the CVN criteria for all thicknesses  $> 5/8$  inch, which is in accordance with Subsection NF. Therefore, the CVN acceptance standards should be expanded for thicknesses over 2-1/2 inches and made consistent with NF-2300. In addition, Table 1 of the enclosure should include mils-lateral-expansion criteria to be consistent with NF-2300.
3. Drop weight tests would not be applicable on the higher alloyed steels such as A-540, A-471 and others. The application of the weld bead in the making of the drop weight test specimen (for material over 2-1/2 inches) compromises this test for high alloyed materials. Note the exemption in NC-2311(c) permits the use of CVN tests for greater than 2-1/2 inches for high-alloyed steels.

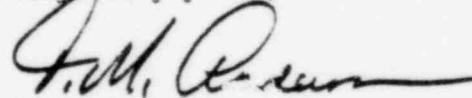
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4. The use of the proposed fracture toughness requirements could force the greater use of higher alloyed steels and of quenched and tempered alloyed steels. This could result in fabrication and welding problems.
5. Any fracture toughness review should not be applied to all the support materials; rather, the review should be performed only for the most highly stressed support components. A reasonable basis for evaluation would be to select only those support members having tensile or shear stresses greater than 75% of the allowable for the faulted conditions.
6. The "failure" evaluation described is not workable. The evaluation is not realistic since it arbitrarily mandates that any failure caused by the assumed initial failure should not be considered. The approach of assuming failure is inconsistent with the Code engineering concept of prevention of failure and the use of the fracture mechanics approach with consideration of stress, flaw size and inspectability, and material properties. Table I of the May 19 and 20 letters, which shows increasing toughness requirements with increasing thickness and increasing specified minimum yield strength, is, however, consistent with the fracture mechanics approach.
7. A temperature of 75°F is stipulated when determining fracture toughness properties. A provision should be added to the requirements that would allow the use of a temperature higher than 75°F for any support components that can be shown by analysis or test to operate at more than 75°F.
8. Part I.C. of the May 19 and 20 letters references Subsection NC Paragraph NC-2333 for bolting material fracture toughness requirements. This should be changed to include Subsection NF requirements for component support bolting material. In addition, the statement "code bolting materials" should be clarified to include code case bolting materials. The code case materials for NF application should be included in any NRC position.
9. Part I.C. states that materials not specified in the code must be analyzed in accordance with Part I.B (evaluation of system with the most highly stressed member assumed failed). Some provision should be made for non-code materials that have CVN data available.

We would be pleased to discuss these comments with you in detail. If you have any questions, feel free to contact me or Mr. Thomas F. Timmons (412-373-5490) of my staff.

Very truly yours,



T. M. Anderson, Manager  
Nuclear Safety Department