



Department of Energy
Washington, D.C. 20545

Docket No. 50-537
HQ:S:83:179

JAN 11 1983

Mr. Paul S. Check, Director
CRBR Program Office
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Check:

ADDITIONAL INFORMATION ON MATERIAL SURVEILLANCE

Enclosed is an amended Preliminary Safety Analysis Report page 5.2-10 providing additional information concerning material surveillance of the reactor vessel. This information is supplied to respond to questions from the Materials Engineering Branch during a telecon on January 4, 1983.

Questions regarding this information may be directed to D. Hornstra (FTS 626-6110) or D. Robinson (FTS 626-6098) of the Project Office Oak Ridge staff.

Sincerely,

John R. Longenecker
Acting Director, Office of
Breeder Demonstration Projects
Office of Nuclear Energy

Enclosure

cc: Service List
Standard Distribution
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58 | 41 | A margin seal is provided to meet the leakage requirements associated with Structural Margin Beyond the Design Base (SMBDB) (see Section 4.2 of Reference 10a of Section 1.6). The riser drawing, Figure 5.2-7, shows the margin seals at the upper end of the riser assembly. The seals are in contact with the bearing and risers thus sealing the upper end of the annulus against radioactivity that is not accompanied by significant pressure increase. SMBDB sodium slug forces and residual pressure are expected to cause the inner riser to rise relative to the seal until the margin shear ring in the head stops the upward motion. Sufficient seal surface overlap will be provided to accommodate this motion. The pressure increases will seat the seal even more tightly, thus providing increased sealing capability. The margin seal is expected to meet the gas and sodium leakage requirements.

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49 | The internal riser space between the margin seals and the inflatable seals is purged with a small flow of clean argon gas. The purging of this seal space, along with the buffer space between the two elastomer o-rings in the bottom of the seal follower and between the two metallic o-rings in the bottom of the inner riser, is provided by a seal service system which also provides continuous pressure for the inflatable seals and argon gas for the static buffer space between the pairs of inflatable seals and between the pairs of elastomer o-ring seals in the bottom of the seal retainer rings.

1 | 5.2.4.5 Surveillance and In-Service Inspection

58 | 5.2.4.5.1 Surveillance

17 | Representative surveillance materials will be obtained from the various product forms, including weldments, from which the reactor vessel and guard vessel are fabricated. The requirements of Appendix H to 10CFR50 will not necessarily be followed since they were generated for ferritic material and the CRBRP reactor vessel will be austenitic. Appropriate surveillance samples will be placed inside the reactor vessel and/or guard vessel, thus providing means for monitoring and evaluating potential material degradations. In-service inspection and monitoring shall include the objectives listed in Table 5.2-2.

58 | 17 | To provide additional assurance in the area of fracture toughness, the project will either; 1) provide confirmatory data supporting that the loss of fracture toughness for values around one dpa are negligible, or 2) include fracture toughness surveillance in CRBRP.