



Department of Energy
Washington, D.C. 20545

Docket No. 50-537
HQ:S:83:229

MAR 02 1983

Dr. J. Nelson Grace, Director
CRBR Program Office
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Dr. Grace:

CLINCH RIVER BREEDER REACTOR PLANT (CRBRP) RELIABILITY ASSURANCE PROGRAM

- References:
1. Letter, HQ:S:83:184, Docket No. 50-537, J. R. Longenecker to P. S. Check, "Nuclear Regulatory Commission Staff Comment Regarding the Clinch River Breeder Reactor Plant Reliability Assurance Program," dated January 11, 1983
 2. Letter, HQ:S:82:053, Docket No. 50-537, J. R. Longenecker to P. S. Check, "Probabilistic Risk Assessment (PRA) Program Plan," dated June 21, 1983
 3. Letter, Docket No. 50-537, J. N. Grace to J. R. Longenecker, "CRBRP Reliability Assurance Program," dated February 25, 1983

As stated in chapter 1 of the Preliminary Safety Analysis Report, the design of the CRBRP is based on the defense-in-depth safety philosophy, commonly known as the three levels of safety design approach, analogous to Light Water Reactor (LWR) practice. The first level of safety provides for reliable plant operation and prevention of accidents during normal operating conditions through the intrinsic features of the design, such as quality assurance, redundancy, maintainability, testability, inspectability, and fail-safe characteristics. The second level of safety provides against anticipated or unlikely faults that might occur in spite of the care taken in design, construction, and operation of the plant. The third level of safety supplements the first two levels by providing acceptable plant response to extremely unlikely faults such as large sodium fires or large sodium water reactions. By diligent application of the defense-in-depth philosophy, we are confident we will demonstrate a level of safety comparable to current generation LWR's.

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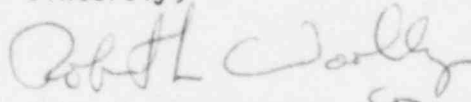
Primary emphasis on the CRBRP design is placed on adherence to the first two levels of safety. Part of this emphasis is carried by our ongoing reliability assurance program (reference 1). The objective of the reliability assurance program is to provide assurance beyond the normal design process that the likelihood of exceeding the guidelines for radiological release is acceptably low. This effort is beyond that required by the regulations or for LWR's.

The safety design philosophy of the plant, bolstered by the reliability assurance program, provides for mitigation of the full range of events from those with relatively minor effects trivial to postulated design basis accidents. This extremely conservative approach to safety and the extensive safety features provided, support our contention that core disruptive accidents are beyond the design basis for CRBRP. However, because of the first-of-a-kind nature of the plant, we analyze and provide features and margins to accommodate hypothetical core disruptive accidents. These include both structural and thermal margins.

Further, the CRBRP project is committed to perform a Probabilistic Risk Assessment (PRA) to analytically evaluate potential safety improvements and assess the overall plant risk, thereby helping to fill the gap caused by the limited availability of liquid metal fast breeder reactor operating experience (reference 2). This PRA is consistent with the Nuclear Regulatory Commission regulations developed following the accident at Three Mile Island-2 and the evolving guidance on safety goals. The CRBRP PRA will be conducted with continuing NRC staff interaction, review, and feedback to the design.

Your letter of February 25, 1983, (reference 3) provides supplemental criteria beyond that above and beyond the regulatory requirements. It transmits criteria that the staff considers requirements on the CRBRP reliability assurance program. As stated above, it has been the project's policy that reliability is an integral part of the design process. It has also been the project's policy that reliability assurance activities continue throughout the life of the plant. The CRBRP project has reviewed the reference 3 criteria and will modify its program to comply with them. To this end, the project will provide a reliability assurance program plan and schedule approximately 6 months after issuance of the construction permit.

Sincerely,



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

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