Department of Energy
Washington, D.C. 20545
Docket No. 50-537
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MAR 08 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:

FISSION-GAS-DRIVEN COMPACTION

The project understands that there is concern on the part of the Nuclear Regulatory Commission (NRC) consultants as to the possibility that a fission-gas-driven compaction of the core might lead to energetics during a Hypothetical Core Disruptive Accident (HCDA). The project has not had the opportunity to review the NRC consultants' data or analyses. Therefore, we do not necessarily concur that this phenomenon has the potential of leading to energetics during an HCDA. The project may elect to analyze the event to determine independently if it is a cause for concern.

It is also our understanding that the NRC consultants have determined that the phenomenon would be of no consequence if approximately 75 percent of the fission gas is unable to participate in the compaction. Based on this understanding, the project commits to making a design change to limit fission gas escape to an acceptable depressurization rate if analysis shows this to be a concern.

Such a design change is feasible. Experimental fuel pins have been designed with a feature that would preclude the participation of most of the fission gas in such a compaction. This design consists of changing the spacer tube within the fission gas plenum of fuel pins from an open-ended tube to a sealed tube with very small orifices. The orificed tubes would restrict the release of gas in a clad tube depressurization event. This design is already scheduled for testing in some EBR-II assemblies. Therefore, a possible design change has been identified that is clearly feasible and may be implemented on the project if required.

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Any questions regarding the information provided can be addressed to Wayne Pasko (FTS 626-6096) of the Oak Ridge Project staff.

Sincerely,

J. E. Stoder

for

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

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