

VIRGINIA ELECTRIC AND POWER COMPANY
RICHMOND, VIRGINIA 23261

August 10, 1979

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
Attn: Mr. O. D. Parr, Chief
Light Water Reactors Branch No. 3
Division of Project Management
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Serial No. 618/073079
LQA/ESG:jab

Docket No. 50-339

Dear Mr. Denton:

We have received and reviewed Mr. Parr's letter of July 30, 1979, which requested additional information concerning reactor fuel for North Anna Unit 2. Our responses to the three questions are attached.

Please contact us should you require additional information on these matters.

Very truly yours,



W. N. Thomas
Vice President-Fuel Resources

Attachment

790814-0450

647-238

COMMENT 4.15

Westinghouse has documented in WCAP-8963 a change in the internal fuel rod gas pressure criteria. Will the fuel design criterion for North Anna Unit 2 incorporate this change for rod pressure? If so, provide the criterion as modified by NRC review of the above noted reference and a reanalysis in the FSAR of affected evaluations.

RESPONSE

The fuel design criteria for North Anna Unit 2 have incorporated the current fuel rod internal pressure criterion (referenced in WCAP-8963 as modified by the NRC) as documented in Section 4.2.1.3 of the North Anna 1 & 2 FSAR. The criterion is that the internal pressure of the lead rod in the reactor will be limited to a value below that which could cause the diametral gap to increase due to outward creep during steady-state operation and which could cause extensive DNB propagation to occur. As shown in the Westinghouse (C. Eicheldinger) to NRC (D. F. Ross, Jr.) letter dated November 24, 1976, Serial No. NS-CE-1290 and WCAP 8963, "Safety Analysis For The Revised Fuel Rod Internal Pressure Design Basis," dated August 1977, no reanalysis of North Anna 1 and 2 FSAR transients is required since the criterion has been met with margin.

COMMENT 4.14

The fission gas release model in the approved Westinghouse fuel performance code (North Anna Unit 2 reference 5) has been found to underpredict gas release from fuel pellets at high burnup, >20,000 MWD/MTU. The effects of higher fission gas release on the safety analyses for North Anna 2 should be evaluated using either (1) the approved performance code in combination with the NRC correction method or (2) a revised performance code which suitably models the increased fission gas release.

RESPONSE

An explicit calculation has been performed for North Anna Unit 2 with the NRC approved Westinghouse fuel performance model (WCAP-8720). The results show that all applicable fuel rod design criteria and, in particular, the current internal pressure criteria are met.

COMMENT 4.16 During a recent refueling outage at a Westinghouse plant (Salem 1), a strap damage was observed on a number of the fuel spacer grids. It is not known whether the damage occurred during the initial core loading or during the refueling withdrawal. What assurances can you provide that the same type of grid damage will not be experienced at North Anna Unit 2?

RESPONSE

There is always a potential for grid strap damage during fuel handling with any PWR design fuel. However, in view of the amount of damage discovered during the recent refueling of another Westinghouse unit, Westinghouse has developed revised fuel handling procedures and shuffle schemes for its 17 x 17 fuel design to minimize the possibility and extent of future grid strap damage. Vepco is currently reviewing these procedures for applicability to North Anna Units 1 and 2. Appropriate revisions to Vepco's current handling practices will be implemented beginning with the initial loading of Unit 2 and the first refueling of Unit 1. In addition, the scope of fuel inspections conducted by Vepco inspectors during fuel handling operations during the first refueling of Unit 1 will be increased. Should the increased inspection scope reveal that grid strap damage is still occurring, Vepco will evaluate changing the fuel handling procedures as deemed necessary to minimize the problem.