

VIRGINIA ELECTRIC AND POWER COMPANY  
RICHMOND, VIRGINIA 23261

W. L. STEWART  
VICE PRESIDENT  
NUCLEAR OPERATIONS

July 17, 1984

Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation  
Attn: Mr. James R. Miller, Chief  
Operating Reactors Branch No. 3  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, DC 20555

Serial No. 224A  
PSE/GLD:klh:2006N  
Docket No. 50-338  
License No. NPF-4

Gentlemen:

VIRGINIA ELECTRIC AND POWER COMPANY  
NORTH ANNA POWER STATION UNIT NO. 1  
RELOAD INFORMATION FOR CYCLE 5 REDESIGNED CORE

North Anna Unit No. 1 is currently in its Cycle 4/5 refueling outage. Vepco has completed the fuel examination and core redesign program described to you in our letter dated May 3, 1984 (Serial No. 224). To date, the fuel rod examination program has consisted of vacuum sipping, visual inspection via binoculars and high magnification TV, and use of fuel assembly cleaning equipment developed by Westinghouse Electric Corporation. The results of the examination program will be provided to the NRC in a special report at a later date.

As a result of these inspections, Vepco has developed a revised Cycle 5 reload core design. All irradiated fuel assemblies to be used in the Cycle 5 redesigned core have been confirmed to be sound through the inspection program.

The Cycle 5 reload core was analyzed in accordance with the methodology documented in Westinghouse Topical Report WCAP-9272 entitled "Westinghouse Reload Safety Evaluation Methodology." The results of these analyses indicated that no key analysis parameters would become more limiting during Cycle 5 operations than the values assumed in the currently applicable safety analyses. Further, the analyses demonstrated that the current Technical Specifications, as approved through Operating License Amendment No. 58, are appropriate and require no additional changes.

The reload analysis results predict a slightly positive (less than 1 pcm/°F) moderator temperature coefficient for the beginning of cycle, unrodded core condition at hot zero power. If a positive moderator temperature coefficient is measured during startup physics testing, limits on control rod withdrawal will be implemented, in accordance with Unit No. 1 Technical Specification 3.1.1.4.

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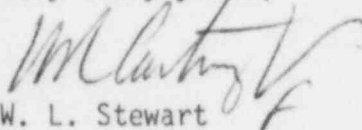
The analyses necessary to support Cycle 5 operation have been performed and reviewed by our technical staff, using the Westinghouse methodology and analysis techniques. In addition, a review has been performed by both the Station Nuclear Safety and Operating Committee and the Safety Evaluation and Control Staff. It has been determined that no unreviewed safety questions as defined in 10CFR50.59 will exist as a result of the Cycle 5 reload core.

The redesign of the Cycle 5 reload core has made it necessary to revise the previously proposed Cycle 5 Core Surveillance Report limits. Attachment 1 provides the revised Cycle 5 values for Fxy and the axial power distribution surveillance limit, Pm. This report is being provided as required by North Anna Unit No. 1 Technical Specification 6.9.1.10 and is based on the current total peaking factor (FQ) limit of 2.20.

As discussed with Mr. Leon Engle on July 5, 1984, we request an exemption to the normal 60 day advance submittal requirement of Technical Specification 6.9.1.10, to allow use of the revised limits for Cycle 5 startup and subsequent power operation. Cycle 5 is currently scheduled to begin operation on August 11, 1984.

Should you have questions, please contact us at your earliest convenience.

Very truly yours,

  
W. L. Stewart

Attachment

(1) Core Surveillance Report for North Anna 1, Cycle 5

cc: Mr. James P. O'Reilly  
Regional Administrator  
Region II

Mr. Leon B. Engle  
NRC Project Manager - North Anna  
Operating Reactors Branch No. 3  
Division of Licensing

Mr. M. W. Branch  
NRC Resident Inspector  
North Anna Power Station

ATTACHMENT 1

NORTH ANNA UNIT 1, CYCLE 5

CORE SURVEILLANCE REPORT

FOR FQ = 2.20

TABLE 1

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NORTH ANNA UNIT 1, CYCLE 5 CORE SURVEILLANCE LIMITS, FQ = 2.20

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I. The F-xy limits for RATED THERMAL POWER within specific core planes shall be:

1.  $F_{xy}\text{-RTP} \leq 1.71$  for all core planes containing bank "D" control rods, and
2.  $F_{xy}\text{-RTP} \leq 1.60$  for all unrodded core planes from 15 to 27% of core height, or
3.  $F_{xy}\text{-RTP} \leq 1.53$  for all unrodded core planes from 27 to 85% of core height.

II. The axial power distribution surveillance threshold power level shall be:

1.  $P_m = 100\%$  of RATED THERMAL POWER.

## NORTH ANNA UNIT 1, CYCLE 5

MAXIMUM ( $F_{TQ} \times P-REL$ ) VS. AXIAL CORE HEIGHT  
DURING NORMAL OPERATION