

February 5, 2003

Mr. David A. Christian  
Senior Vice President - Nuclear  
Virginia Electric and Power Company  
5000 Dominion Blvd.  
Glen Allen, Virginia 23060

**SUBJECT: PRELIMINARY FEEDBACK ON INSPECTION OF NORTH ANNA, UNIT 2,  
DESIGN AND RECONCILIATION ACTIVITIES FOR THE REACTOR  
PRESSURE VESSEL HEAD REPLACEMENT**

Dear Mr. Christian:

This letter provides the preliminary results of the Nuclear Regulatory Commission (NRC) inspection of Virginia Electric Power Company's (VEPCO's) reconciliation and design change activities related to the replacement of the reactor pressure vessel head (RPVH) at North Anna, Unit 2, with a head manufactured to the French Nuclear Construction Code (RCC-M). The scope of the inspection included reviewing (1) the reconciliation report; (2) the manufacturer's data report for the replacement head; (3) the design modifications prepared to support the replacement; and (4) other quality records associated with the replacement. The inspection was part of a larger effort that included NRC staff meetings with the French regulatory authority and Framatome ANP that supplied the RPVH, and inspection of activities related to opening containment to allow RPVH replacement, RPVH transfer, repair of the containment, and post repair testing performed onsite during the current outage to replace the RPVH.

This inspection was initially started on January 6, 2003. However, at that time, the review of the reconciliation information by VEPCO staff was not complete and we suspended our inspection on January 7, 2003. We recommenced our inspection on January 27, 2003, completing it on January 30, 2003. Details of the team's activities will be documented in inspection report number 50/339/2003-09 along with the details of the inspections conducted onsite. The report is scheduled to be issued on or about March 17, 2003. On February 10, 2003, my team and I will provide your staff with the results of the design and reconciliation inspection at a public exit meeting held at VEPCO's corporate offices in Glen Allen, Virginia.

#### Preliminary Assessment of Reconciliation and Design Change Activities

Generally, the team found that VEPCO's efforts to reconcile the design, fabrication, and examination of the replacement RPVH to the current design requirements provided reasonable confidence that the replacement head is of acceptable quality to maintain safety. The team noted that the Framatome ANP manufacturer's data report had been reviewed and accepted by an Authorized Nuclear Inspector (ANI). The ANI stated: "The contents of this report are accurate and, as far as possible, are equivalent to the requirements of Section III, Division I of the ASME Code ...." The team found that the records reviewed were of high quality, providing an auditable record of your reconciliation and design change efforts.

There were no issues identified by the team that would have required prior NRC approval before the replacement RPVH could be placed in service at North Anna, Unit 2, and the unit was returning to operation at the time the team completed its inspection activities. During the inspection there were a number of observations made by the team for which the VEPCO and Framatome staff provided prompt feedback to clarify how the reconciliation activities were conducted, to clarify the results of the reconciliation, or to develop additional documentation supporting the bases for reconciling the design, fabrication, examination, and testing of the replacement RPVH to the North Anna, Unit 2, RPVH design specification. For example, in response to the team's observation, VEPCO prepared and included an overview in the reconciliation report of the quality assurance processes and oversight activities related to VEPCO's and Framatome's activities. Similarly, a VEPCO addendum was prepared that described other activities that had been performed to support the reconciliation as it related to the nondestructive examination (NDE) of the replacement RPVH.

The team reviewed the welding procedures, processes, and records used in the fabrication of the replacement RPVH. Of particular interest to the team was the application of a friction welding process in the fabrication of the vessel head penetration adapter tubes. Friction welding is used to join the control rod drive mechanism adapter flange to the tube segment of the adapter tube. The staff's assessment of the friction welding process, as implemented by Framatome ANP to meet the requirements of the RCC-M Code, is that it produces high quality, repeatable welds that can be safely used in commercial U.S. pressurized water reactors.

On a related topic, when the NRC staff met with Framatome ANP in December 2002, the possibility was identified that a relief request would be needed from the NDE requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code for the dome to flange weld of the RPVH. The team confirmed the need for this relief during the January 6, 2003, inspection. This relief was submitted to the NRC on January 28, 2003. The NRC will review this relief request and provide you a response under cover of a separate letter.

Should you have any questions or comments regarding the issues discussed in this letter, please contact me at (301) 415-1068 or Stephen Monarque at (301) 415-1544.

Sincerely,

*/RA/*

John A. Nakoski, Chief, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-339

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