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TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

400 Chestnut Street Tower II

October 15, 1984

Mr. R. C. DeYoung, Director  
Office of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Dear Mr. DeYoung

Please refer to J. A. Domer's letter to you dated August 20, 1984 which transmitted our response to Notice of Violation and Proposed Civil Penalty: EA-84-25 for our Browns Ferry Nuclear Plant (Reference Inspection Reports 50-259/83-46, -260/83-46, -296/83-46, 50-259/83-55, -260/83-55, -296/83-55, 50-259/84-01, -260/84-01, and -296/84-01). As a result of discussions with the NRC Site Resident Inspector, we are enclosing a revised response to Item I.D(2).

If you have any questions, please call Jim Domer at FTS 858-2725.

To the best of my knowledge, I declare the statements contained herein are complete and true.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

  
L. M. Mills, Manager  
Nuclear Licensing

Enclosure

cc (Enclosure):

U.S. Nuclear Regulatory Commission  
Region II  
ATTN: James P. O'Reilly, Regional Administrator  
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2. Contrary to the above, Engineering Design (EN DES) Engineering Procedure (EP) 1.48 issued December 16, 1983, allowed decisions to be made for a significant nonconforming condition without design control measures commensurate with those applied to the original design. In consequence, 16 emergency diesel-generator cooling heat exchangers and 12 residual heat removal (RHR) pump seal cooling heat exchangers were not targeted for prompt corrective action applying the guidance from EN DES-EP 1.48.

1. Admission or Denial of the Alleged Violation

TVA admits the violation occurred.

2. Reasons for the Violation if Admitted

Reason for Violation

I.D(1) - The BFN units 1 and 2 heat exchangers were supplied with the diesel generators packages as part of the nuclear steam supply system (NSSS) purchased in 1966 from General Electric (GE). The unit 3 diesel generators were contracted for by TVA in 1973, to the same specifications as those for units 1 and 2. TVA, in designing the EECW, assumed that the equipment being supplied by GE that utilized EECW was rated for operation at the EECW system pressure. As such, this interface was overlooked at the design review stage.

I.D(2) - The diesel generator EECW heat exchanger design deficiency was originally identified by nonconformance report (NCR) BFNMEB8301. This NCR was later superseded by NCR BFNBP8311 which identified similar problems with other EECW 'users' including the residual heat removal (RHR) pump seal coolers. Failure evaluation/engineering reports (FE/ERs) provided in accordance with EN DES-EP 1.48 as part of these NCR transmittals supplied engineering evaluations of these conditions to assist in the determination of the condition's reportability to NRC. The FE/ER also provides (when available) recommendations for corrective actions. However, implementation of corrective actions is accomplished not by the issuance of FE/ERs but through the existing design change request (DCR)/engineering change notice (ECN) process. As such, it is our position that the FE/ER is not a part of TVA's design change control process.

For the diesel generator EECW heat exchangers, it was determined that failure of the heat exchangers at the maximum system operating pressure was unlikely. This assessment was based on engineering analysis of the heat exchanger

subcomponents, a successful hydrostatic test of the heat exchangers at a pressure above the maximum system operating pressure, and the previous years of satisfactory service from the heat exchangers at Browns Ferry Nuclear Plant (BFN). As a result, modifications to the EECW for reducing the system pressure at the heat exchanger inlet to the design pressure of the diesel generator heat exchangers were implemented on a schedule that was considered timely by TVA and yet did not perturbate ongoing work of equal or greater priority at BFN. As for the RHR pump seal cooler heat exchangers, TVA had begun replacing the original heat exchangers with a newer model (same 150 lb/in<sup>2</sup>g design pressure) when the EECW design pressure discrepancy was identified. However, it was determined that even though the EECW system design pressure was higher than the rated pressure for these heat exchangers (both the original and new models), the actual EECW system pressure at the heat exchangers was lower than the heat exchanger design pressure (note that the EECW system pressure at the diesel generator heat exchangers was higher than the heat exchanger design pressure). Also, the manufacturer of the new heat exchangers certified to TVA that the heat exchangers were qualified for service at the EECW system design pressure of 185 lb/in<sup>2</sup>g. Hence, corrective actions for this condition involve changes in design documentation only. Replacement of the RHR pump seal cooler heat exchangers has been scheduled by TVA in a manner such that previously scheduled work of equal or greater priority would not be adversely impacted.

### 3. Corrective Steps Which Have Been Taken and Results Achieved

ECN PO709 was initiated in November 1983 to install throttling valves in the EECW supply to the diesel-generator heat exchangers to reduce the EECW system operating pressure at the heat exchangers. As of July 1984, all of the throttling valves have been installed and tested.

As noted above, the RHR seal cooler heat exchangers are being replaced by new heat exchangers that are qualified for operation at the EECW system design pressure (185 lb/in<sup>2</sup>g). Per L. M. Mills' letter to J. P. O'Reilly dated February 1, 1984, the new heat exchangers have been installed on units 1 and 3.

These modifications will require some minor changes to the information on these systems and components in the Browns Ferry Final Safety Analysis Report (FSAR).