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TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

5N 157B Lookout Place

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WBRD-50-390/86-65
WBRD-50-391/86-58

NOV 19 1986

U.S. Nuclear Regulatory Commission
Region II
Attention: Dr. J. Nelson Grace, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Dear Dr. Grace:

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 - INADEQUATE AS-CONSTRUCTED WELD CONNECTIONS FOR CONTROL BUILDING STRUCTURAL FRAMING - WBRD-50-390/86-65, WBRD-50-391/86-58 - INTERIM REPORT

The subject deficiency was initially reported to NRC-Region II Inspector Morris Branch on October 20, 1986 in accordance with 10 CFR 50.55(e) as SCR WBN CEB 8689. Enclosed is our interim report. We expect to submit our final report on or about March 5, 1987.

If there are any questions, please get in touch with J. A. McDonald at (615) 365-8527.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

R. Gridley
R. Gridley, Director
Nuclear Safety and Licensing

Enclosure

cc (Enclosure):

Mr. James Taylor, Director
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ENCLOSURE
WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
INADEQUATE AS-CONSTRUCTED WELD CONNECTIONS FOR CONTROL BUILDING
STRUCTURAL FRAMING
WBRD-50-390/86-65 AND WBRD-50-391/86-58
SCR WBN CEB 8689
10 CFR 50.55(e)
INTERIM REPORT

Description of Deficiency

During the review of Weld Deviation Reports (WDRs) for the Watts Bar Nuclear Plant (WBN) weld program, calculations were made to check the adequacy of the as-constructed welded connections for the main framing and bracing in the main framing in the Control Building (evaluation 741.0). The affected bracing was installed to compensate for cable tray support loads. Several of these connections proved to be inadequate due to undersize, underlength, and missing welds.

These conditions were identified during inspections associated with the WBN Weld Sample Program. Welds found to deviate from the inspection criteria were described on WDRs. The WDRs were submitted to the design organization for evaluation of the welded connections to determine if they were suitable for service. This condition involves 10 WDRs that after evaluation based on the design calculations were deemed to be unsuitable for service (i.e., the stresses in the weld connections exceeded AISC allowables). Three WDRs are for mainframing connections and seven WDRs are for bracing connections in main framing (installed to compensate for cable tray support loads). After evaluation of approximately 750 structural related WDRs reviewed, the 10 WDRs described are the only ones deemed unsuitable for service. We have no indication that there are other similar situations in the plant at this time.

The cause of the mainframe connection deficiencies is being bounded, but acceptance of the unacceptable connections has been attributed to a lack of thorough weld inspections. The bracing connection WDRs stem from a combination of designers failing to recognize a conflict between two connection details, failure of construction to notify engineering of the modifications to the connections, and a lack of thorough weld inspection.

Safety Implications

The main framing for the access platform of 741.0 evaluation carries cable tray support loads in addition to the platform loading. This framing in conjunction with other members provides a method of supporting and transferring both vertical and horizontal seismic loads. If some of the members were to fail, the load could redistribute to other members of the system and have no adverse structural effects. However, if the loads do not redistribute during a design basis event several members could fail. Failure of the main structural framing and bracing could cause failure of cable tray supports and subsequent failure of class 1E cables. Consequently, this condition could adversely affect the safety of operations of the plant.

Interim Progress

TVA is currently evaluating this deficiency by performing a reanalysis of the floor structure using the latest design criteria to verify its adequacy. The structural significance of the questionable connections and the consequences of their failure can only be determined accurately after the reanalysis is complete.

TVA will address necessary corrective actions and actions to prevent recurrence in the final report which will be submitted to NRC on or about March 5, 1987.

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