Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

APR 11 1991

WBRD-50-390/91-08
WBRD-50-391/91-08

10 CFR 50.55(e)

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of the Application of)
Tennessee Valley Authority)

Docket Nos. 50-390
50-391

WATTS BAR NUCLEAR PLANT (WBN) UNITS 1 AND 2 - DEFICIENCY IN THE INTAKE PUMPING STATION AND DIESEL GENERATOR BUILDING ENVIRONMENTAL CONTROL SYSTEMS - WBRD-50-390/91-08, WBRD-50-391/91-08 - INTERIM REPORT

The subject deficiency was initially reported to NRC Inspector H. Livermore on March 7, 1991, in accordance with 10 CFR 50.55(e) as Significant Corrective Action Report WBP 900084SCA. Enclosed is our interim report. A final report is scheduled to be submitted by October 31, 1991.

If there are any questions, please telephone P. L. Pace at (615) 365-1824.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

R. H. Shell

for E. G. Wallace, Manager
Nuclear Licensing and
Regulatory Affairs

Enclosures
cc: See page 2

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U.S. Nuclear Regulatory Commission

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ENCLOSURE 1

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
DEFICIENCY IN THE INTAKE PUMPING STATION AND
DIESEL GENERATOR BUILDING ENVIRONMENTAL CONTROL SYSTEMS
SIGNIFICANT CORRECTIVE ACTION REPORT WBP900084SCA
10 CFR 50.55(e)

INTERIM REPORT

DESCRIPTION OF DEFICIENCY

During a generic applicability review of a Sequoyah Nuclear Plant deficiency, the following deficiencies have been identified.

1. The ventilation and heating systems serving the mechanical and the electrical equipment rooms of the intake pumping station are not designed to ensure that the room temperatures are maintained between the 108°F high and the 65°F low as described in the Final Safety Analysis Report. The electric space heaters and the ventilation fans are not safety-related and are classified as non-Quality Assurance, non seismic Category I, and class non-1E. The continued operation of the heaters and the fans cannot be assured. As a result, the safety-related instrument sense lines could freeze and the environmental qualification temperature of the safety-related electrical equipment could be exceeded during, before, or after a design basis accident.

2. The heating, ventilation, and air conditioning equipment for the intake pumping station, which included electric heaters purchased under Contract No. 81131 and roof ventilators under Contract No. 83105, are not qualified to Seismic Category I(L) requirements. Watts Bar Design Criteria WB-DC-40-36.1 states that this equipment must be qualified to Seismic Category I(L) requirements. In a seismic event, parts of the heaters and the fans could become loose and fall on the safety-related equipment underneath; and possibly, render them inoperable.

3. The minimum temperatures in the diesel generator building 480V board rooms cannot be maintained upon failure of the nonsafety-related electric heaters.

SAFETY IMPLICATIONS

As a consequence of the above conditions, the Class C mechanical piping and sense lines in the intake pumping station mechanical equipment rooms, associated with the backwashing essential raw cooling water strainer operation, could freeze during the worst-case conditions (i.e., heaters failing in the off position and the ventilation fans in the on position).

The frozen instrument sense lines would lose their ability to detect/signal the condition of clogged strainers, and therefore, fail to initiate automatic switching of the redundant strainers or the manual action of the operators. Consequently, the availability of the essential raw cooling water system could not be guaranteed during all plant operating conditions (before or after a Design Basis Accident).

If the ventilation fans failed, temperatures in the intake pumping station electrical equipment room, which contains safety-related electrical cables, could exceed the maximum environmental qualification temperature for which the electrical equipment is qualified.

The minimum temperatures could not be maintained in the diesel generator building 480V board rooms if the electric heaters failed; however, there is no water piping or instrument sense lines in the room which could be damaged from freezing temperatures, and the electric equipment will not be adversely affected by the decrease in room temperatures. Therefore, the failure of electric heaters will have no ill effect on the safety-related diesel generator building 480V board rooms.

INTERIM PROGRESS

TVA is considering the following actions to determine the extent of condition and to identify the appropriate corrective actions:

1. Review the existing heating load calculations for the intake pumping station mechanical equipment rooms, diesel generator building 480V board room, and other plant safety-related equipment areas, or generate new calculations to determine what the minimum space temperatures would be if the non-safety related electric heaters failed.

2. Based on the results of calculations, revise the 47E235-series Environmental Data drawings to reflect the calculated minimum temperatures.

3. Requalify the electric equipment and components to the new minimum temperatures.

4. If it is not feasible to qualify the electrical equipment and components to the new (lower) temperatures or there are safety-related mechanical equipment (e.g., piping, tanks, and sense lines) subjected to sub-freezing temperatures, then provide reliable heating systems or heat tracing.

5. Review the existing cooling load calculations or generate new calculations for the intake pumping station electrical equipment room and the other plant safety-related equipment areas to determine if the failure of the non-safety related fans will result in exceeding the maximum EQ temperatures.

6. If the calculated temperatures exceed the current maximum temperatures, then revise the environmental data drawings and requalify the electrical equipment to the new (higher) temperatures.

7. If it is not feasible to qualify the electrical equipment to the higher temperatures, then provide reliable cooling systems.

8. Revise the environmental data drawings to designate the worst-case minimum space temperatures, which will prevail after a Loss of Coolant Accident where required.

9. Provide verification of seismic adequacy of the intake pumping station electric space heaters and roof ventilators to the Seismic Category I(L) requirements, and thus, eliminate the discrepancy with the Design Criteria WB-DC-40-36.1.

10. Revise the design basis document and the design output documents, and submit Final Safety Analysis Report changes to reflect modifications as required.

11. Procure any electric heaters, fans, and electrical components, as required, to provide reliable heating and cooling systems.

12. Install any physical modifications identified.

The selection of the appropriate options will be made depending upon the results from the review of the heating/cooling load calculations given in items 1 and 5 above.

TVA will provide a final report to detail the review results and the selection of the appropriate corrective action options.

ENCLOSURE 2

LIST OF COMMITMENTS

1. TVA will provide a final report to detail the review results and the selection of the appropriate corrective action options by October 31, 1991.