TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

85 FEB 28 P1:17

February 25, 1985

WBRD-50-390/85-09
WBRD-50-391/85-09

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. 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 - UNQUALIFIED FIRE PROTECTION EQUIPMENT FOR THE EMERGENCY GAS TREATMENT SYSTEM AND AUXILIARY BUILDING GAS TREATMENT SYSTEM FILTER HOUSING - WBRD-50-390/85-09 AND WBRD-50-391/85-09 - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector A. Ignatonis on January 25, 1985 in accordance with 10 CFR 50.55(e) NCR WBN MEB 8504. Enclosed is our final report.

If you have any questions, please get in touch with R. H. Shell at FTS 858-2688.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

J. A. Domer

for J. W. Hufham, Manager
Licensing and Regulations

Enclosure
cc (Enclosure):
Mr. James Taylor, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Records Center
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, Georgia 30339

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ENCLOSURE

WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
UNQUALIFIED FIRE PROTECTION EQUIPMENT FOR THE EMERGENCY GAS TREATMENT SYSTEM AND AUXILIARY BUILDING GAS TREATMENT SYSTEM FILTER HOUSINGS
WBRD-50-390/85-09 AND WBRD-50-391/85-09
NCR WBN MEB 8504
10 CFR 50.55(e)
FINAL REPORT

Description of Deficiency

During the generic review for nonconformance report (NCR) WBN NEB 8421 (which was separately reported under 10 CFR 50.55(e)), TVA personnel noted that the closed head fire protection spray nozzles in the emergency gas treatment filter system (EGTS) are rated to fuse open at a temperature of 175°F. However, the air being filtered could approach 170°F. This leaves insufficient margin to provide adequate assurance that they would not inadverently open during EGTS operation.

Additionally, the smoke detectors installed just downstream of the EGTS and downstream of the auxiliary building gas treatment system (ABGTS) are of the ionization type. Because of this, the detectors are not qualified for operation due to the radiation dose they are expected to see.

TVA has determined that the cause of this condition was the failure of the designers to consider the effects of the operating environment on this equipment.

Safety Implications

The lack of an adequate margin between the EGTS spray nozzle fuse temperature setting and the expected environmental temperature during EGTS operation, and the presence of radioactivity which could interfere with the operation of the EGTS and ABGTS smoke detectors create the potential for a spurious activation of the fire protection system. This could cause the inadvertent wetting of the charcoal bed filters utilized in both systems during operation of the systems. Such wetting would reduce the effectiveness of the filters and could allow the dispersal of airborne contaminants through the plant during a postulated design basis accident which in turn could adversely affect safe plant operation.

Corrective Action

TVA is replacing the 175°F rated spray nozzles in the EGTS housing with all metal spray nozzles having a minimum temperature rating of 250°F. Also, the fire detection systems for the EGTS and ABGTS are being modified to perform an alarm function only. The automatic actuation of the deluge valves, fire pump start, and filter fan shutdowns will be changed to manual operation to eliminate spurious actuation due to radiation damage. The above actions are being implemented through engineering change notice (ECN) 5430 and will be completed by February 28, 1985.

TVA's management controls over the design process emphasize the review of all design efforts for critical plant features as the method of identifying such individual mistakes so that appropriate action can be taken. Recent revisions to Engineering Procedure (EP) 3.10, "Design Verification Methods and Performance of Design Verification," have strengthened the management controls over independent reviews on drawings and associated design efforts. These revisions should ensure that adequate independent reviews are performed in the future.