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400 Chestnut Street Tower II

December 15, 1980

80-006-03L ✓

Mr. James P. O'Reilly, Director
Office of Inspection and Enforcement
U.S. Nuclear Regulatory Commission
Region II - Suite 3100
101 Marietta Street
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

SEQUOYAH NUCLEAR PLANT UNIT 2 - MAIN CONTROL ROOM HABITABILITY - NCR QEB 80-01 - REVISED FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector R. W. Wright on March 5, 1980, in accordance with 10 CFR 50.55(e). A final report was submitted on April 3, 1980.

The corrective actions described in our final report to this deficiency have proved ineffective in reducing the leakage of air into the control room to acceptable levels in order to meet the habitability requirements. After these initial modifications were made, the system was retested. Although the leakage of air was reduced, it remained at a level that was unacceptable.

The enclosed revised final report describes our additional corrective actions which achieved acceptable inleakage of outside air to meet habitability requirements in the control room. Also, the revised final report defines TVA's plans for further corrective action which will provide an additional protection for the control room during an accident condition.

If you have any questions, please get in touch with D. L. Lambert at FTS 857-2581.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

L. M. Mills, Manager
Nuclear Regulation and Safety

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Enclosure
cc: Mr. Victor Stello, Director (Enclosure)
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ENCLOSURE
SEQUOYAH NUCLEAR PLANT UNIT 2
MAIN CONTROL ROOM HABILABILITY
NCR QEB 80-01
10 CFR 50.55(e)
REVISED FINAL REPORT

Description of Deficiency

This condition concerns the control room HVAC duct system. The original design was done according to standard industrial practice and all applicable criteria at the time. During peroperational testing of unit 1, there was found to be significant leakage of unfiltered outside air into the main control room during isolation conditions. An analysis of these leak rates indicated that during an accident radiation levels inside the control room could rise to levels in excess of the limits established in 10 CFR 50, Appendix A, Design Criteria 19.

There are two main sources of the leakage: (1) there is leakage past isolation dampers which shut off the normal supply of pressurizing air to the control room, and (2) there is leakage through the opening for the motor drive belts for the smoke removal fan. This condition is documented in preoperational test deficiencies PT-333 R2 and PT-333 R3.

Safety Implications

If this condition had remained uncorrected, it might have led to a deterioration of the environment in the main control room during an accident condition.

Corrective Action

1. The four dampers in the normal pressurizing supply duct to the main control room elevation 732 were replaced with two air-operated butterfly valves. Two additional butterfly valves were installed to replace the dampers which supply air from the pressurizing fan to the spreading room. The ductwork for these systems was replaced with spiral welded pipe.

2. Tight sealing, manually operated doors were added in the ducts that supply cooling air to the shutdown board rooms to eliminate inleakage from the auxiliary building.

3. The ducts connecting the smoke removal fan to the battery exhaust system were blanked off. This reduced the inleakage from the lower floors of the control building.

4. The chlorine detection sample lines were moved from the discharge of the pressurizing fans to a point downstream of the butterfly valves. This eliminated a significant leak path.

After these changes were made, the system was again tested and the total inleakage of unfiltered outside air was low enough to meet habitability requirements of the control room. However, to provide further margin, TVA plans for all ductwork which contains pressurized unfiltered air, including smoke removal and battery exhaust ductwork, to be changed to all welded steel before startup after the first refueling outage of unit 1. Critical dampers will be replaced by butterfly valves at the same time.