

ENCLOSURE

SEQUOYAH NUCLEAR PLANT UNIT 2  
MAIN CONTROL ROOM HABITABILITY  
NCR QEB 80-01  
10 CFR 50.55(e)  
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 preoperational 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 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 pre-operational 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 pressurizing air duct will be modified from the pressurizing fans to the control room air handling units by adding two additional isolation dampers (total of four). Also, the pressurizing supply duct from the air handling units' return plenum will be disconnected.
- (2) The control room smoke removal fan will be replaced with a direct drive fan that has an integral fan housing the duct system.

When these modifications have been made, the system will be retested. The new leak rates will be used in the new dose rate calculations in order to ensure that the new design is adequate. These corrective actions will be implemented and testing will be completed before initial criticality of unit 1.