

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

September 6, 1983

USNRC REGION II
ATLANTA, GEORGIA
83 SEP 12 4 8: 18

U.S. Nuclear Regulatory Commission
Region II
Attn: Mr. James P. O'Reilly, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

SEQUOYAH NUCLEAR PLANT UNIT 2 AND WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 -
MAIN CONTROL ROOM HABITABILITY - NCR SQN QEB 8001 AND NCR WBN SWP 8101 -
THIRD REVISED FINAL REPORT

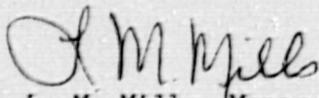
The subject deficiency was initially reported to NRC-OIE Inspector R. W. Wright on March 5, 1980 in accordance with 10 CFR 50.55(e). A final report was submitted on April 3, 1980, and a revised final report was submitted on December 15, 1980. Our second revised final report was submitted on January 30, 1981. Enclosed is our third revised final report.

This revised report was written to provide accurate information regarding corrective action for NCR WBN SWP 8101 and to answer the concerns expressed by NRC Watts Bar Resident Inspector Ted Heatherly in a June 24, 1983, exit meeting. In this meeting, Mr. Heatherly expressed concern that the ECNs use as corrective action for this item were not consistently processed or reviewed.

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

Very truly yours,

TENNESSEE VALLEY AUTHORITY


L. M. Mills, Manager
Nuclear Licensing

Enclosure

cc: Mr. Richard C. DeYoung, Director (Enclosure)
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U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

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Institute of Nuclear Power Operations
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ENCLOSURE

SEQUOYAH NUCLEAR PLANT UNIT 2 AND WATTS BAR NUCLEAR PLANT UNITS 1 AND 2
MAIN CONTROL ROOM HABITABILITY
NCR SQN QEB 8001 AND NCR WBN SWP 8101
10 CFR 50.55(e)
THIRD 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 preoperational testing of Sequoyah 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, Criterion 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 Sequoyah preoperational test deficiencies PT-333 R2 and PT-333 R3.

Subsequent investigation revealed that this condition also applies to Watts Bar Nuclear Plant.

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, 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 a combination of round and rectangular duct and steel pipe. This ductwork was tested per ANSI-N509 and the resultant leakage was found to be acceptable.
2. Tight sealing, manually-operated doors were added to 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 provided with "bubble-tight" flow control valves. Installation of these valves reduced the inleakage from the lower floors of the control building and allows the use of the smoke removal fan when required.

4. The discharge side ductwork of the air handling units is an unacceptable location for the chlorine detectors. They will be moved to the location presently shown on TVA Watts Bar drawing 47W930-3 R23. Drawing 47W625-11 will be revised per field change request (FCR) I-1056 R2 and engineering change notice (ECN) 4219 to show the correct location. The drawing revisions will be completed by September 30, 1983, and the chlorine detectors will be moved by October 30, 1983.
5. The belt-driven smoke removal fan was replaced with a direct-drive fan that has the motor enclosed in the fan housing.

The following tabulation illustrates the basis for Mr. Heatherly's comment:

	ECN				
	<u>2510</u>	<u>2512</u>	<u>2679</u>	<u>2752</u>	<u>2753</u>
Required for FSAR	Yes	No	No	No	No
Required for Preop	Yes	Yes	Yes	Yes	No
Seismic Analysis	Yes	Yes	Yes	No	Yes
NCR Required	No	No	Yes	Yes	No
QA Applies	Yes	Yes	Yes	No	Yes
Review by NEB	Yes	No	Yes	No	No

TVA has investigated the inspector's concern and, as a corrective action, has determined that the level of review for the ECNs should have been as follows:

	ECN				
	<u>2510</u>	<u>2512</u>	<u>2679</u>	<u>2752</u>	<u>2753</u>
Required for FSAR	Yes	No	No	No	No
Required for Preop	Yes	Yes	Yes	Yes	Yes(6)
Seismic Analysis	Yes	Yes	Yes	Yes(4)	Yes
NCR Required	Yes(1)	Yes(2)	Yes	Yes	Yes(7)
QA Applies	Yes	Yes	Yes	Yes(5)	Yes
Review by NEB	Yes	Yes(3)	Yes	Yes(3)	Yes(3)

- (1) NCR WBN SWP 8323 (WBRD-50-390, 391/83-30) was initiated on April 27, 1983.
- (2) This condition was identified on NCR WBN SWP 8101.
- (3) These ECNs were initiated as a result of Preop Test Deficiencies at Sequoyah Nuclear Plant, which had been reviewed by NEB. The review effort was not duplicated for Watts Bar since similar corrective action was approved for SQN.
- (4) The doors attached to seismic ductwork should also be reviewed for a seismic event.
- (5) QA applies for all safety-related systems and components.
- (6) Chlorine detectors are tested in Preop Test TVA-28.

(7) The fact that the chlorine detectors mounting location contributed to leakage was identified in NCR SQN QEB 8001 and WBN SWP 8101.

Investigation has also revealed that all of the ECNs in question were initiated by the same individual who is no longer with TVA.

To prevent recurrence of inconsistencies in the processing, review, and handling of documents, on February 26, 1982, TVA initiated a training program to instruct all Division of Engineering Design (EN DES) employees on the proper use of engineering procedures (EPs). This includes EP 4.02, "Engineering Change Notices (ECNs) - Handling."