

POOR ORIGINAL

400 Chestnut Street Tower II

June 12, 1981

SQRD-50-328-81-13

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 - FAILURE OF THE GENERATOR SYSTEM TO SUPPLY  
ADEQUATE VOLTAGE TO THE SAFETY-RELATED BOARDS - SQRD-50-328/81-13 -  
FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector  
M. Thomas on January 5, 1981, in accordance with 10 CFR 50.55(e) as  
NCR's SON EEB 8054 and WEN EEB 3009. Interim reports were submitted for  
Sequoyah unit 2 and Watts Bar units 1 and 2 on February 4 and April 3,  
1981. The Watts Bar deficiency (WBFD-50-390/81-13 and WBPD-50-391/81-12)  
is now being handled under a separate report. Enclosed is our final  
report.

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

Enclosure

cc: Mr. Victor Stello, Director (Enclosure) ✓  
Office of Inspection and Enforcement  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

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## ENCLOSURE

### SEQUOYAH NUCLEAR PLANT UNIT 2 FAILURE OF THE GENERATOR SYSTEM TO SUPPLY ADEQUATE VOLTAGE TO THE SAFETY-RELATED BOARDS

SQRD-50-328/81-13

10 CFR 50.55(e)

#### FINAL REPORT

#### Description of Deficiency

When a reactor is tripped automatically for reasons other than an electrical fault or generator bearing failure, the main generator is not tripped for 30 seconds. During this time, the turbine stop valves are closed, and the generator is driven as a synchronous motor. The transfer of the safety boards to the preferred offsite supply is also delayed for 30 seconds. If the generator voltage regulator system failed to operate within its specified range during this delay period, inadequate voltage could be supplied to the 6900-volt shutdown boards following the unit trip. If this occurred, both trains of essential safety-related equipment supplied by the 6900-volt shutdown boards would be unable to meet the required response times stated in the safety analysis report.

#### Safety Implications

If the 6900-volt shutdown board was unable to meet the required response times, then it would be impossible to ensure that core cooling, containment integrity, and other safety features are maintained.

#### Corrective Action

TVA is in the process of implementing an undervoltage protection scheme on the 6.9-kV unit boards that will transfer each board to its alternate (preferred offsite) supply within six cycles should the main generator voltage become degraded. The transfer will only be enabled during the 30-second time delay following a reactor trip and before the main transformer high-side breakers are tripped. These changes will be implemented on unit 2 before initial criticality.

Also, in order to ensure adequate starting voltage for motors in the 480V Class 1E ac auxiliary power system during this 30-second period, the voltage on the 6.9-kV shutdown boards during normal operation must be at least 6700 volts. The unit operators will verify that this voltage is maintained.