

PART 21 IDENTIFICATION NO. 81-390-000 COMPANY NAME TVA

DATE OF LETTER 3/27/81 DOCKET NO. 50-328/390/391

DATE DISTRIBUTED \_\_\_\_\_ ORIGINAL REPORT  SUPPLEMENTARY

DISTRIBUTION:

REACTOR (R)

IE FILES

EES - *Mills*

REGIONS I, II, III, IV, V

VENDOR BR. R-IV

LOEB / MPA MNB 5715

AEOD MNB 7602  
*AEOD/DMU MNB 7217*  
NRR/DOE

NRR/DSI

NRR/DST

NRR/DOL

ASLBP E/W 450

FUEL CYCLE &

MATERIALS (M)

IE FILES

AD/FFMSI

REGIONS I, II, III, IV, V

VENDOR BR. R-IV

NMSS / FCMS SS-395

LOEB / MPA MNB 5715

AEOD MNB 7602  
*AEOD/DMU MNB 7217*  
ASLBP E/W 450

SAP/SP. MNB-7210A

SAFEGUARDS (S)

IE FILES

AD/SG

AD/ROI

REGIONS I, II, III, IV, V

VENDOR BR. R-IV

NRR/DOL

NMSS / SG SS-881

LOEB / MPA MNB 5715

AEOD MNB 7602  
*AEOD/DMU MNB 7217*  
ASLBP E/W 450

CENTRAL FILES 016

CENTRAL FILES (CHRON)

PDR

LPDR

TERA

CENTRAL FILES 016

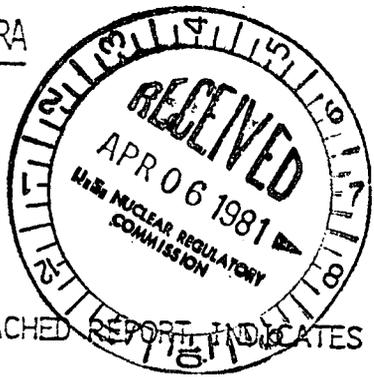
CENTRAL FILES (CHRON)

CENTRAL FILES SS-395

PDR

LPDR

TERA



CENTRAL FILES 016  
~~CENTRAL FILES (CHRON)~~  
PDR  
LPDR  
TERA

ACTION:

PRELIMINARY EVALUATION OF THE ATTACHED REPORT INDICATES LEAD RESPONSIBILITY FOR FOLLOWUP AS SHOWN BELOW:

IE

NRR

NMSS

OTHER

EES

S

8104100174

*MPA*

TENNESSEE VALLEY AUTHORITY  
CHATTANOOGA, TENNESSEE 37401

81-394-000

400 Chestnut Street Tower II

March 27, 1981

SQRD-50-328/81-20  
WBRD-50-390/81-22  
WBRD-50-391/81-21

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 AND WATTS BAR NUCLEAR PLANT UNITS 1 AND 2 -  
BLOWN FUSE ALARMS IN AUXILIARY CONTROL CIRCUITS - SQRD-50-328/81-20,  
WBRD-50-390/81-22, WBRD-50-391/81-21. - FINAL REPORT

The subject deficiency was initially reported to NRC-OIE Inspector  
R. V. Crlenjak on February 26, 1981, in accordance with 10 CFR 50.55(e)  
as NCR's SQN NEB 8110 and WBN NEB 8102. Enclosed is our final report. We  
consider 10 CFR 21 applicable to this deficiency.

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

ENCLOSURE  
SEQUOYAH NUCLEAR PLANT UNIT 2  
WATTS BAR NUCLEAR PLANT UNITS 1 AND 2  
BLOWN FUSE ALARMS IN AUXILIARY CONTROL CIRCUITS  
SQRD-50-328/81-20, WBRD-50-390/81-22, WBRD-50-391/81-21  
10 CFR 50.55(e)  
FINAL REPORT

Description of Deficiency

The Sequoyah and Watts Bar auxiliary control panels were manufactured by Bailey Meter Company, Wycliffe, Ohio. The instrument loops on these panels are provided with fuses for overcurrent protection. These fuses utilize a contact for blown fuse alarm. When the fuse fails, a contact on the fuse applies the instrument loop 48V dc power to an alarm relay which is grounded.

The instrument loop ground is located near the transmitter in the circuit. Consequently, when the blown fuse alarm is energized, the holding current of the alarm relay is detected by all other instrumentation downstream of the transmitter as the alarm circuit is completed through the ground and back to the negative side of the power supply. The holding current of the alarm relay is approximately 45 mA, which represents 90 percent of the full range of the instrument loops. This value exceeds the high setpoint values of the process system monitors resulting in the inadvertent actuation of active components and process high alarms. All auxiliary control instrument loops are affected. This deficiency only causes inadvertent actuation of equipment when control of the plant is in the auxiliary mode, except for the auxiliary feedwater instrument loops. This deficiency applies to auxiliary feedwater level control during normal operating conditions.

Further investigation has revealed that all balance-of-plant instrument loops are designed in a similar manner.

This deficiency was discovered during preoperational testing at Sequoyah unit 2 when a fuse blew in a pressurizer pressure instrument loop resulting in a signal to open the pressurizer PORV.

Safety Implications

This deficiency could have led to the inadvertent actuation of equipment while the plant is being shutdown from the auxiliary control boards (i.e., main control room inaccessible). This could have led to system transients which were severe enough to adversely affect the operator's ability to shut down the plant.

During normal operation from the main control room, a blown fuse in a single AFW level control circuit could have led to the loss of one of the redundant auxiliary feedwater paths to one steam generator due to closure of an auxiliary feedwater level control valve which is controlled by a steam generator level signal. This is within the scope of the plant design basis and therefore would not have adversely affected the operator's ability to safely shut down the plant or to mitigate the consequences of a design basis event.

### Corrective Action

For all safety-related instrumentation, the instrument loop ground will be moved from near the transmitter to the negative side of the power supply. With this design change, the alarm relay holding current will not be detected by the other instrument loop components. For all nonsafety-related instrumentation, the alarm circuit will be removed from service.

These modifications will be completed before fuel load for each unit.