

TENNESSEE VALLEY AUTHORITY
CHATTANOOGA, TENNESSEE
37401



April 4, 1974



Mr. John F. O'Leary, Director
Directorate of Licensing
Office of Regulation
U.S. Atomic Energy Commission
Washington, DC 20545

Dear Mr. O'Leary:

TENNESSEE VALLEY AUTHORITY - BROWNS FERRY NUCLEAR PLANT UNIT 1 -
DOCKET NO. 50-259 - FACILITY OPERATING LICENSE DPR-33 - ABNORMAL
OCCURRENCE REPORT BFAO-7420W

The enclosed report is to provide details concerning a malfunction of the rod sequence control system (RSCS) and subsequent control rod movement with the reactor below 30-percent power and the RSCS inoperable. This event occurred on Browns Ferry Nuclear Plant unit 1 on March 25, 1974, and is submitted in accordance with Appendix A to Regulatory Guide 1.16, Revision 1, October 1973.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

E. F. Thomas
E. F. Thomas
Director of Power Production

Enclosure

CC (Enclosure):

Mr. Norman C. Moseley, Director
Region II Regulatory Operations Office, USAEC
230 Peachtree Street, NW., Suite 818
Atlanta, Georgia 30303

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ABNORMAL OCCURRENCE REPORT

Report No.: BFAO-7420W
Report Date: April 4, 1974
Occurrence Date: March 25, 1974
Facility: Browns Ferry Nuclear Plant unit 1

Identification of Occurrence

Malfunction of the rod sequence control system (RSCS) and subsequent control rod movement with the reactor below 30-percent power and the RSCS inoperable.

Conditions Prior to Occurrence

The reactor was operating at approximately 15-percent power during a routine startup following a scram.

Description of Occurrence

During the startup, it was discovered that, with all group "A" and group "B" sequence rods fully withdrawn, the group "C" rods could be selected although the reactor was below 30-percent power. This was reported as a failure of the rod sequence control system which permitted group "C" rods to be selected below 30-percent reactor power. To prevent movement of the group "C" rods while the problem was being corrected, a controlling relay was pulled to ensure that the RSCS group "C" select inhibit was in the enforcing condition; and no group "C" rods were moved until the RSCS was restored to normal operation. During this time, however, several group "B" rods were notched in for power shaping. It was later recognized by the Plant Operations Review Committee during preparation of the 10-day report that the RSCS was not inhibiting the selection of all rods. The RSCS relay which had been manually activated was inhibiting selection of only groups "C," "A1," and "A2."

Analysis of Occurrence

The malfunction was isolated to the sequence logic board of the RSCS. A failed integrated circuit resulted in a premature group "C" rod withdrawal permissive. See Abnormal Occurrence Report BFAO-7415W for additional details regarding analysis of this type of occurrence.

Corrective Action

The failed sequence logic board was replaced with a spare and the RSCS logic tested satisfactorily. The cause of the logic board failure was determined to be an input NAND gate in integrated circuit U9. Instructions will be changed to specifically require that no rods be moved except for scram while the RSCS is inoperable and to specifically require RSCS testing in all sequences following any correction or repair.

Failure Data

3/12/74--Pressure switches improperly set with feedwater heaters out of service.

3/25/74--Integrated circuit U9 of the sequence logic board, GE drawing 828E164, failed.